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Editor :
SUTINDER SINGH

UNIVERSITY OF KERALA

Thiruvananthapuram

The University of Kerala, Thiruvananthapuram plays host to the
66th Annual Meeting of the Association of Indian Universities on
7-8 October 1991.

'*Karmani Vyajyate Prajna*'. The University of Travancore which eventually developed into the University of Kerala, was established on November 1, 1937 by Sri Chithira Tirunal Balarama Varma, the then Maharaja of Travancore. It was the sixteenth University to be set up in India. In 1957, after the formation of the Kerala State, the University of Travancore was reorganised as the University of Kerala with jurisdiction over the entire State. But with the formation of the University of Calicut in 1968, the University of Cochin and the Kerala Agricultural University both in 1971, the Mahatma Gandhi University in 1983, the jurisdiction gradually decreased and it came to be confined to the southern districts of Kerala.

The University which had 10 affiliated colleges and a total student strength of 3,137 in 1938-39, came to have 148 colleges affiliated to it in 1968 with a student enrolment of 1,39,079. Today after the establishment of the other universities in the State, the number of colleges affiliated to the University is 60 – 43 Arts and Science Colleges, 2 Law Colleges, 2 Engineering Colleges, 2 Medical Colleges, 7 Teachers' Training Colleges and one each of the Ayurveda, Homeopathy, Fine Arts and Physical Education colleges. The student strength in all these institutions together is 1,23,847 and the number of teachers 5,660.

The University has a well developed Campus at Karivattom, outside the limits of the Thiruvananthapuram City where the University Departments are set up. The University has 31 Departments under 16 Faculties, where 237 teachers are imparting instruction to 1,663 students. The University Departments offer a wide range of teaching and research programmes at the postgraduate, M.Phil. and Ph.D. levels. The output of research in the University has been considerable and it has so far produced as many as 1,250 Ph.Ds. in the various faculties. About thirty colleges offer postgraduate teaching programme. The University has also its scheme of private registration of candidates for the various University examinations.

The University also maintains several centres and institutions for carrying on specialised studies and research. The Centre for Vedanta Studies, the Sree Narayana Study Centre for Social Change, the Population Research Centre, the Centre for Women's Studies, the Centre for Adult Education and Extension, the Computer Centre, the Instrumentation Centre, etc., are among the most important of such centres and institutions. The University Library with a total book stock of 3 lakhs is one of the best of its kind in the country. The Oriental Research Institute and Manuscripts Library has an invaluable collection of 60,000 rare manuscripts on a wide variety of subjects, in Sanskrit, Malayalam, Tamil, Bengali, Telugu, Hindi, Kannada, Assamese, Oriya and Burmese. The University has an Observatory also attached to it.

The Department of Publications of the University is noted for the pioneering work it has done in bringing out, even in its formative years, a series of glossaries in science subjects, popular science books and translations of ancient classics. Since the fifties, the University has been engaged

(Contd. on page 32)

Mauritius — A test case

India and its educational and cultural obligations to persons of Indian descent abroad

S.K. Agrawala*

It is seldom that migrants merge their identity, culture and socio-religious practices and beliefs with that of the people in the country of their adoption. It is also neither unusual nor unnatural for them to look up to their country of origin for the renewal of these ties for cultural inspiration, revitalisation, creativity and growth. The behaviour of human societies also confirms that this process is generational; it does not end up with the severance of the bonds of allegiance to the mother country. Perhaps, it may be the biological instinct for survival or the instinct to preserve and nurture one's separate cultural group identities which have been impelling the migrants everywhere to conduct themselves as they do.

Migration from India has been taking place since ancient times. Indian cultural influence throughout South-East Asia is a living evidence of such contacts. Afghanistan, Tibet and part of China were similarly exposed to parallel influences from India. As compared to early Indian emigration, during the heydays of the British rule Indians were taken in large numbers as indentured labour to work on plantations and construction works in British colonies — The Dutch took them as far as to Surinam; the Dutch, the French and the British took them to Mauritius. This emigration continued upto the Second World War, also to Guyana, Trinidad, South Africa, Fiji, Burma, Sri Lanka (Ceylon), Malaysia. Indians migrated as traders mostly to the East African colonies of Britain. Following the Second World War, Indian migration to the industrialised countries of Europe and North America — Britain, Canada, U.S.A. and other European countries, commenced. Their number is roughly estimated at about two millions. Since 1970s Indians have also been moving to the Oil-rich West Asian countries, numbering about a million (in 1980s). Their total number according to one estimate is currently about 15 million.

Persons of Indian origin constitute a significant proportion of the population in certain countries¹.

Country	Percentage of persons of Indian origin to the total population
Mauritius	57.88
Fiji	41.35
Guyana	42.85
Trinidad and Tobago	33.95
Surinam	30.09
Nepal	22.85
United Arab Emirates	18.75

Though much has been said about Indians abroad emphasizing particularly the need for the protection of their political and civic rights and economic interests², the appreciation of their educational and cultural needs has relatively been wanting. Surprisingly, this is true not only of persons of Indian origin in countries having a lower GNP per head than India's, but also of Indians in countries having a substantially higher GNP per head (as the table in Appendix -1 would indicate).

Sri C. Kondapi writing as far back as in 1951, significantly observed "In education lies the real salvation of Indians abroad"³. Kondapi also referred to the need for the promotion of social and cultural contacts and suggested frequent official and non-official deputations between India and the immigrant countries; visits by national leaders, thinkers and artists; scholarships by Indian organisations and individuals to migrants for higher studies in India; visits, study and interaction initiated by organisations such as the All India Women's Conference, as the possible modalities. During the last forty years since he wrote this book, the modalities of such contacts have developed several-fold, many official and non-official organisations have come into being and the perceptions of the Government of India and enlightened and informed Indians, and their counterparts in immigrant countries have also been significantly metamorphosed.

[Incorporates the Report of the Expert Group on Promotion of Research in Mauritius.]

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The concerted efforts by India to improve the scientific and industrial base during the plan periods have led to significant achievements in the fields of education, agriculture, atomic energy, space science, oceanography, industry, etc. Today, India ranks sixth in the world in space science and nuclear power and ninth in the production of pig iron and ferro alloys; among the industrialized nations of the world it occupies the nineteenth position. India has the world's third largest scientific and technological manpower next only to USA and USSR. The National Laboratories, the educational institutions and the manufacturing sector are the major contributors to the development of technology and technical skills. Since the problems faced by India are similar to those faced by most other developing countries, she is in a position to offer appropriate technologies to them which are cost-effective, suited to local conditions making maximum use of local inputs and providing maximum employment to local persons through labour orientation. Due to these advantages, the technology and management expertise which are extensively offered by the Indian entrepreneurs have already found wide acceptability in the developing countries. At the end of March 1990, there were 215 Indian joint ventures in 45 countries which were in production/operation and under various stages of implementation. The Indian joint ventures abroad encourage a very wide spectrum of industrial products. Besides participating in joint ventures, Indian enterprises are also providing technical and management consultancy in many countries. Project export is another form of transfer of technology. Indian enterprises have successfully completed a large number of projects in diverse fields in Libya, Kuwait, USA, Iraq, Nigeria, Tanzania, Mauritius, Thailand, Malaysia and many other developed and developing countries. The areas covered include power plants, sugar, textiles, cement, paper and pulp, engineering industries, chemical and pharmaceutical plants, etc.

With this industrial and technical potential, India is easily capable of meeting the educational - general, technical, medical, agricultural and management studies-needs of students from all countries, except perhaps those from West Europe, North America and Russia. This is firstly, because of the strides made by India in teaching and research in all disciplines and their extensive application in technology, industry and trade, and secondly, because of the extremely low fee structure which bears no relation whatsoever to the cost of education, making higher education in India the cheapest as compared to that available in any other part of the world. Many Indian migrants, for these reasons, now want to educate their children in India⁴.

The economic boom in several emigrant countries because of the scientific development of plantations, or because of the development of some trade and/or industry in some others, or because of the oil riches in still others, has given them a level of GNP per head which bears little relation to their general development and diversification of their educational and industrial base. If they want to even maintain the present level of economic prosperity, not to say of further improvement of their standards of living, there is imperative need for them to diversify their economy, to modernise it and to make it competitive. This requires manpower in the desired fields, trained to the highest levels of sophistication. This, in turn, is possible only by building up an educational system of their own from the grass root level upto the research levels, in all relevant disciplines - pure and applied, natural sciences and social sciences. There seems to be no escape from this course of action for these countries to achieve their desired goals. Besides the moral aspects of the question, India and its academics stand to benefit from this experience in terms of the opportunity to prove themselves, besides the lucrative employment which they would be able to corner. Good neighbourly relations with these countries, re-establishing and strengthening cultural links with the peoples of Indian origin and others in these countries, and in the process carving out little areas of influence for itself in certain portions of the globe, are the other likely fall-outs. It has also to be consistently kept in view that increased role as a regional power for India in the South-East Asian and Indian Ocean regions is inevitable because of India's geographical location, its size, population, resources, scientific manpower, industrial development and similar other factors. The universities and colleges in India cannot, therefore, remain unaffected by the foreign policy needs and perceptions and international relations, of India. As one educationist has observed in case of United States, **"Hardly an aspect of academic life has escaped the influence of world events and movements"**, Indian academic life is also going to be increasingly affected with the growing role of India in world and regional affairs. The academics and the academics must, therefore, prepare themselves for this role.

A two-pronged well thought-out long-term strategy and planning, therefore, combining education in India for the children of the immigrants as well as building up the educational systems of the countries of their adoption correlated to their developmental needs, wherever necessary, seems to be imminent. It would obviously be more viable and fruitful to get started with countries where the component of persons of Indian origin is significantly high, the economic development has been

uni-directional and the higher educational system is still awaiting development. The rewards for India in such countries would be the highest, and so would be the self-confidence gained by our academics.

It is equally necessary to take note of the cultural urges and aspirations of the migrants and their expectations from the country of origin, in this regard. A well conceived plan of extensive and intensive cultural exchanges (taking culture in its most comprehensive sense), involving as large numbers as possible, consisting of programmes of a varied nature, interspersed throughout the year, covering every strata of society, would be the desideratum. Phenomenal advances in communications and the associated technology have opened up several new possibilities and provided novel modalities to affect such exchanges which did not exist earlier. This is still another opportunity for India, to affect an Indian cultural resurgence in such regions. The opportunity need not be lost because of lack of vision, imagination or initiative on the part of our people and Government.

II

One such country with 57.8 per cent of the population constituted of persons of Indian origin drawn from several Indian States, composed of about a dozen linguistic groups, representing the cultural diversity of India, is Mauritius.

The State of Mauritius consists of two small islands and numerous tiny coral islands with a population of only about one million and an area of 2040 sq. kilometres, situate in the South West Indian Ocean, off the S.E. Coast of Africa, close to Madagascar, six hours away from Bombay by air.

The country obtained independence in 1968. The social services are fairly well developed. Education at primary, secondary and tertiary levels is free. Literacy rate is above 90 per cent. The primary and secondary education is based on solid and strong foundations.

Since 1984 the economy has bounced back 'into a phase of high economic growth and remarkable economic expansion'⁵. From a mono-crop (sugar) type of economy, the country has diversified its economic activities with more importance being assumed by export-oriented manufacturing industries and tourism. According to a World Bank study of 1989 its estimated ratio of net earnings to gross exports was 80 per cent as against 23 per cent for manufacturing industries and 15 per cent for tourism. The Gross Domestic Product per capita in 1989 was 31,500 (Mauritian rupees). Thus a country with middle income economy, is aspiring to

move into the ranks of newly industrialised countries. "If Mauritius is to make the jump into higher technology and quality successfully and break into new grounds and sectors, one essential prerequisite will be the development of research activities"⁶. After surveying the status of research activities in various fields, this study concludes that the government efforts, funds and support services have been inadequate for promotion of research capable of building up the national technology capability essential for the successful implementation of the economic diversification policies⁷.

The Government of Mauritius, of late, seems to have become conscious of the need for research for the achievement of its economic/industrial objectives and the further improvement in the standards of living of their people. They have statutorily set up a **Tertiary Education Commission**⁸ with the specific responsibility to promote research through planning, coordination and implementation.

This commission constituted an Expert Group on Promotion of Research (EGPR). The mandate of EGPR was to make an in-depth study of the strengths, weaknesses and potentials of the prevailing system of research in Mauritius and to recommend positive measures to encourage research in all disciplines. The EGPR consisted of the following members :

Foreign Experts: Prof. Moonis Raza (India), Prof G.S. Bhalla (India), Prof S. K. Agrawala (India), Prof M.S. Narasimhan (India), Prof P. N. Srivastava (India) and Prof T.R. Morrison (Canada).

Mauritius Experts: Prof J. Manrakhan (UOM), Mrs. M. Seetulsingh (MCA), Mr R. Ramdoyal (MIE), Mr U. Bissoondoyal (MGI), Dr S. Baligaddo (SSR Centre), Dr C. Ricaud (MSIRI), Dr R. Antoine (FARC), Prof. G.T. Mohammedbhai (UOM), and Prof Rais Ahmed (Secretary and Convener).

The Group met in Mauritius between 17th and 21st June, 1991. The overseas members visited all the Schools of the University and interacted with staff, senior students and academics of these departments and visited all the laboratories and got acquainted with the kind of work going on there. They also participated in a presentation by the Vice-Chancellor, University of Mauritius, Prof. Jagdish Manrakhan and Heads of Schools of the University about their research contribution and also discussed the constraints and requirements in detail. It was followed by an intensive seminar for two days accompanied by paper presentations and extremely constructive and enlightened discussions. After this extensive and intensive interaction, the EGPR

met to consider the measures that have to be taken for proper development and encouragement of research in tertiary institutions in Mauritius.

The EGPR made the following recommendations :

" PREAMBLE

1. In its present state of development when Mauritius is poised to diversify its economy and stands at the threshold of the phase of rapid industrialisation and modernisation, one of the challenges it faces is that of strengthening and expanding its tertiary education. The strong base of primary and secondary education which has been created in the country due to enlightened policies needs to be complemented by an equally strong tertiary sector. This is essential for not only establishing a cultural climate that is conducive to raising the intellectual level of performance, but also for facilitating the avenues of socio-economic development. Research and development, and educated skilled manpower are becoming essential inputs for modernising the economy, for increasing productivity and reaping maximum comparative advantage in the production process and for augmenting exports in a highly competitive world. Modernization must proceed, as well, within a broad social framework which recognizes the importance of cultural development and an educated citizenry.

2. Research in the tertiary sector has to grow in many disciplines so as to explore and facilitate the avenues of socio-economic development and also to raise the levels of intellectual performance. The quality of education largely depends on creative activity and research on the part of scholars and academic staff. Therefore, it has to be encouraged by all the existing institutions. It is accepted the world over that university based research, which taps fresh minds all the time is most cost-effective.

3. The Expert Group notes with great satisfaction that the Government of Mauritius has already taken a policy decision to build up the tertiary education system, alongwith its capacity to undertake research, and the Tertiary Education Commission (TEC) has already adopted a clear policy to promote research in the institutions within its scope.

Financial Support Required for Research

4. We urge the Government of Mauritius to give further expression of the intention to financially support in the tertiary institutions a reasonable infrastructure of facilities and services, programmes of attracting young

minds to postgraduate education and research and nurturing their talent, encouraging and preparing academic staff of the institutions to undertake competent research, and to promote inter-institution cooperation on national regional and international levels.

Need for Strategic Planning

5. We have observed during our interactions that the academic staff is highly enthusiastic about research and looks forward to receiving encouragement and necessary support from their own institutions and the Tertiary Education Commission for pursuing their research activities. However, the volume and quality of research is at present constrained because of inadequate infrastructure and a variety of other shortfalls and deficiencies in the system. The series of changes and improvements which have to be brought about to obtain the desired results are so complex that serious strategic planning is called for. Not only multidisciplinary research has to be encouraged, but also proper mechanisms of evaluating performance have to be established, and steps have to be taken to disseminate the results of the investigations to the users of research. In order to remain within limits of resources, selectivity and priorities will have to be incorporated.

Specific Programmes Recommended

6. Some of the specific programmes which are recommended for rapid promotion of high quality research, are the following :

Books, periodicals etc.

6.1(a) The position with regard to availability of books and journals is indeed alarming; therefore, systematic efforts and considerable inputs are required to remedy the situation, otherwise both research and education will suffer. A list of good books absolutely necessary for undergraduate and postgraduate courses should be compiled with great care so as to limit their number in the first instance. For this purpose it would be imperative to streamline the courses being offered, so as to minimise overlaps by putting them on a course-credit pattern. Books for each approved course must be acquired without further delay. Indeed no course should be started unless the minimum number of books are available. Books required for research should also be identified and steps taken to procure them.

6.1(b) A list of periodicals which represents a very modest requirement should be drawn up for regular subscription, in the first instance. The list must correspond to the subject areas which are carefully chosen to be pursued at the research level. Apart from special-

ized periodicals, some general purpose periodicals reporting recent advances must also be included in the list. A journal like "Current Contents" should be obtained by air mail and contact should be made with agencies overseas which can quickly supply photocopies of papers which are required by researchers. Links with international data banks should be explored as also the possibility of using the electronic mail service.

6.1(c) A union (common) catalogue of all the libraries of the tertiary system should be compiled as a database on the computer and steps should be taken to make it possible for the students and the academic staff to borrow books from any of the libraries. This would amount to the setting up of a network of libraries to constitute a central library and documentation resource of the tertiary education system.

Equipment, Maintenance

6.2(a) There is very considerable deficiency of infrastructure pertaining to equipment and its maintenance. Therefore, in the light of strategic planning and selective development of facilities, a reasonable list of equipment which is to be acquired should be drawn up. This is over and above the equipment required for undergraduate and postgraduate laboratories. Since sophisticated equipment is very costly, it should be ensured that it is available for common use to all the institutions.

6.2(b) The maintenance of equipment has been a great problem and possibly a number of items are out of order at any one time. Steps should be taken to study the situation so as to arrange rapid repair, if necessary, by inviting a technical task force from abroad for the purpose. It is necessary to set up a Central Workshop with adequate facilities and technical staff so as to service equipment in all tertiary institutions. Training should be arranged so as to man the Central Workshop with competent hands.

Computer facility

6.3 The computer facilities which are needed for research, as distinct from teaching of computer related courses, have to be set up, and consultations should be made for acquiring a suitable mainframe computer, with requisite number of terminals.

Availability of Scholars and of time on the part of Academic Staff

6.4(a) An essential aspect of promotion of research is to ensure a supply of scholars in postgraduate and doctoral courses. This will be ensured, we hope, by

expansion and diversification of undergraduate and postgraduate enrolment.

6.4(b) Since research requires considerable time and concentration on the part of academic staff, it should be ensured that the teaching hours and time devoted to the preparation of lectures and setting-up of laboratory experiments, are not excessive. The strength of technical and support staff now available should be carefully assessed to remove any possible deficiency in this respect.

6.4(c) It would be necessary to examine the prevailing situation and to ensure that a limit is put to the variety of courses particularly sub-degree courses with small enrolments so as not to encroach on staff time which could be devoted to research.

6.4(d) The stipends associated with postgraduate and research awards must be carefully pitched at the level which would provide an incentive for bright students to enter upon research.

6.4(e) It is noted that in many subjects the academic staff is not at appropriate strength and it may even be sub-viable. The position should be examined so as to have a "critical mass" available for proper interaction and coverage of the subject.

Academic Staff Development and institutional linkages

6.5 Since the country is geographically isolated, its own institutions are small and not yet very strong, a policy of systematically promoting contacts of various kinds with institutions and experts in other countries has to be evolved. Such a policy would enable promotion of competent research and teaching in the institutions, in a cost-effective way. In particular a comprehensive scheme should be worked out to provide assistance towards :

(a) travel to professional conferences, research congresses and to undertake short training courses abroad. Academic Staff of all tertiary institutions should be entitled to register for their Ph.D degrees in the degree awarding institution of Mauritius, namely, the University of Mauritius.

(b) projects proposed by the Academic Staff of the tertiary institutions, after due expert evaluation of the proposals.

(c) sabbatical leave facility to Academic Staff, with expenses paid for spending time in purposeful activity in research institutions abroad for periods up to six months.

(d) institution of summer/winter schools which would be 4-6 week courses on advanced topics, run during vacation periods. At least 2 or 3 such courses should be run every year, on selected areas of research, with the help of 2 or 3 experts from overseas for each summer/winter school. This programme involves some expenditure even though many experts could be found who would be prepared to come on the basis of meeting their travel and local costs. The spirit of international academic cooperation often makes this possible. Even this expenditure could be limited if hostel/guesthouse facility of a modest kind could be set up for tertiary institutions.

(e) the construction of a centralised hostel, which would facilitate other important programmes such as possible residence by postgraduate and research students and students from other countries who would come under collaborative exchange programmes. This would furthermore, result in the most effective use of campus facilities such as libraries and the laboratories, because extended hours of work would become possible during evening and night.

(f) many other programmes of collaborative research with research institutions, here and abroad. In particular tertiary institutions here must develop an atmosphere of free communication among their academics, and promote joint and cooperative research. This could be given some organizational support, e.g. by TEC setting up a Research Consultative Committee from among researchers in local institutions, with the possibility of some participation from abroad.

(g) establishment of a suitable 'forum' of researchers, scholars and users of research to meet periodically, to exchange ideas and information with regard to research and development. They should meet at least once a year. Perhaps this could take the form of an 'association' or an 'academy' in Mauritius. The Tertiary Education Commission may explore the possibilities of generating interest in this proposition.

(h) incentives for research which is very important. It is recommended that performance in research should be given weight in promotion of academic staff in all institutions.

(i) generating enthusiasm among researchers by instituting at least two national awards to be given every year after due scrutiny for the best research done in (a) social sciences, humanities and/or administration etc; and (b) sciences, agriculture, engineering etc.

Suggested Course of Action

7. It is urged that the Tertiary Education Commission may examine these recommendations for approval and to work them out in detail. Since the Commission carries the responsibility, given to it by the Parliament, to help the coordination, planning and implementation of research in tertiary level institutions in Mauritius, we expect that the Tertiary Education Commission would pursue the goals set out here for implementation and take them up with the Government of Mauritius, for their acceptance, and requisite support. We also expect the tertiary educational institutions who have participated in the framing of these recommendations to examine all possibilities of implementing these recommendations."

This report has been submitted to the Tertiary Education Commission which had constituted the Expert Group on the Promotion of Research. We feel convinced that all concerned would do the needful for implementing the recommendations in the shortest possible time.

It needs to be realised, however, that there is a lot which the Government of India (MHRD) also could do for ensuring the implementation of several of these recommendations particularly as regards academic exchanges, staff development and consultancies at various levels and of various types. [It is all the more necessary because of isolation and lack of interaction with their peers which the academics in Mauritius experience due to the geographical location of the country, its small size and undeveloped academic disciplines with hardly one or two specialists in any one area.] UNITWIN – a UNESCO programme of action for reinforcing inter-university cooperation, could also be harnessed for the purpose.

This EGPR report deals only with promotion of research in Mauritius, according to its mandate. Other aspects of cooperation between the two countries, however, are covered by a comprehensive **Agreement on Economic, Technical and Cultural Cooperation** signed as early as on 14th March, 1978. Under this Agreement detailed programmes of exchanges and cooperation between the two Governments are being worked out for a two year block period at a time. For example, for 1990-92 in the field of education exchange of a certain number of academics and educational administrators was envisaged for: developing links between institutions of higher learning in the two countries; study-cum-lectures in the field of fundamental sciences; technical/vocational education, social sciences and humanities; to facilitate participation in seminars and

conferences; visit of Indian agricultural scientists for short periods for specified studies in defined areas. Exchange of text-books and children's books and other educational materials; scholarships by India to Mauritian students standing first in Indian languages at the S.C. or H.S.C. examinations; assistance by India for the development of Mahatma Gandhi Institute particularly for production of audio-visual material on Indo-Mauritian studies and culture, exhibitions, exchange of performing artists, development of the School of Indian Studies of the MGI, training of MGI staff in India, the teaching of Indian languages and study and development of oriental languages have also been envisaged. Visits of historians in connection with their research work; holding of seminars/symposia on themes of mutual interest; exchange of persons engaged in adult education programmes; promotion of scheme of writers in residence etc., are also included.

In the field of art and culture India is to provide videotapes in Indian languages from Indian broadcasting stations for the language laboratory in Mauritius. Exchange of performing arts groups; exhibition of arts and crafts; organisation of film festivals; exchange of films and documentaries dealing with arts and culture for the benefit of adults and school children; study of historical records and archives available in each other's country; cooperation between national libraries, and similar other programmes of exchange and cooperation have been envisaged in the various facets, and areas of art, culture, Indian languages and literature. Cultural education; documentation of the Arts, production of cultural resources, exchange of cultural troupes has been also included. Youth and Sports, mass media, women and child development are the other subjects covered under this two-year programme.

Quite recently on August 10, 1991, India and Mauritius have also signed a scientific and technological cooperation programme for 1991-92, at Port-Louis, in the fields of biotechnology, renewable energy and environmental protection. India has agreed to provide Mauritius project aid to develop agriculture, industry, infrastructure, health, education, arts and culture. In the health sector, India has agreed to treat in Indian hospitals cardiac patients from Mauritius; India will also provide consultancies for the setting up of an Ayurvedic centre at Montagne Longue; and assist in the computerization of the pharmaceutical store of the Mauritian Ministry of Health.

In education, India will support Mauritian efforts towards strengthening the educational, cultural and curriculum development activities of the Mahatma

Gandhi Institute and facilitate links with Indian Council for Cultural Relations. India has also offered to share with Mauritius its know-how in remote-sensing and computerization in the shape of technical assistance, software and equipment.

Mauritian agriculture and industry would gain from Indian experience in the fields of water storage, irrigation, tea-production, marketing and light metal industries⁹.

India will provide 20 experts to Mauritius in diverse fields during the year.⁹

Mauritius has also recently sought the B.A., B.Sc. and B.Com. courses of the Indira Gandhi National Open University, New Delhi. Assisted by the Commonwealth of Learning, IGNOU is considering to enroll 300 students, and provide counselling to them in Mauritius.

Revitalising the commitment made between the two Governments more than a decade ago, coincides well with the constituting of the EGPR in June, 1991. The Indo-Mauritian Joint Commission, it may well be hoped, will formulate its programmes of exchange, cooperation, technology transfer and others with reference to the recommendations of the EGPR.

These programmes of exchange with Mauritius in the fields of education, arts and culture, youth affairs and sports, women and child development etc., besides technology transfer in diverse fields, constitute, in a sense, a test case for India, the success of which could prove to be the pace-setter for parallel initiatives vis-a-vis other countries. The experiment with Mauritius and its outcome will, therefore, have far-reaching consequences and would naturally be watched with great interest.

Footnotes

1. See Appendix I for comprehensive table.
2. See I.J. Bahadur Singh, *Indians in South Asia* (1984 Sterling) and the literature cited therein, particularly: Prem Chopra, *India's Second Liberation* (1973, Vikas); Aniruddha Gupta (ed.): *Indians Abroad in Asia & Africa* (Orient Longmans, Bombay, 1971) Kurian and Srivastava, *Overseas Indians: A Study in Adaptation* (Vikas, Delhi, 1983) Hugh Tinker, *The Banyan Tree: Overseas Emigrants from India, Pakistan and Bangladesh*.
3. C. Kondapi, *Indians Overseas: 1838 - 1949* (1951 Indian Council of World Affairs, Oxford University Press), at p. 521.
4. See Appendix II for figures of overseas students studying in India. This table does not necessarily refer to children of persons of Indian origin abroad.
5. See Mrs. P. Heralall and I. Dassyné, *Mauritius. The Research Environment* (CEDREFI, 1990, Mauritius), p. 1.
6. *Ibid.*, p. 2
7. *Ibid.*, p. 50
8. Sir Victor Glover, the Chief Justice of the highest court of

Mauritius, is its Chairman, and Prof. Rais Ahmed who was formerly the Vice-Chairman, UGC, Director, NCERT and Vice-Chancellor, Kashmir University, is the Executive Director.

9. See *The Statesman*, Delhi, August 11, 1991.

Abbreviations used :

CEDREFI	—	Centre for Documentation Research and Training in the South West Indian Ocean.
EGPR	—	Expert Group on the Promotion of Research.

FARC	—	Food & Agriculture Research Council
MCA	—	Mauritius College of the Air
MES	—	Mauritius Examinations Syndicate
MGI	—	Mahatma Gandhi Institute
MIE	—	Mauritius Institute of Education
MSIRI	—	Mauritius Sugar Industry Research Institute
SSRMC	—	Sir Seewoosagur Ramgoolam Medical Centre
TEC	—	Tertiary Education Commission.

Appendix 1

S.No.	Name of the country	Total population	Persons of Indian origin	Percentage of persons of Indian origin	GNP per capita in U.S. dollars (1988)
1.	Bangladesh	10,60,00,000	1,20,69,748	11.38%	170
2.	Burma	3,98,40,000	3,50,000	0.87%	200
3.	Canada	2,62,00,000	1,75,000	0.66%	16,760
4.	Fiji	7,27,104	3,00,697	41.35%	1,540
5.	Guyana	9,90,000	4,24,400	42.86%	410
6.	India	84,39,30,861	-	-	330
7.	Jamaica	24,00,000	50,318	2.09%	1,348
8.	Kenya	2,28,00,000	79,000	0.34%	360
9.	Malaysia	1,74,00,000	12,08,500	6.94%	1,870
10.	Mauritius	10,77,187	6,23,500	57.88%	1,810
11.	Nepal	1,66,30,000	38,00,000	22.85%	170
12.	The Netherlands	1,48,00,000	1,01,500	0.68%	14,530
13.	Oman	13,00,000	1,03,910	7.99%	5,070
14.	Pakistan	10,54,00,000	3,81,000	0.36%	350
15.	Saudi Arabia	1,20,00,000	1,20,000	1.00%	6,170
16.	Singapore	26,50,000	1,59,500	6.01%	8,782
17.	South Africa	3,01,90,000	8,00,000	2.64%	2,290
18.	Sri Lanka	1,66,00,000	10,54,000	6.34%	420
19.	Surinam	4,15,000	1,24,900	30.09%	2,450
20.	Tanzania	2,32,00,000	59,000	0.25%	160
21.	Trinidad and Tobago	12,40,000	4,21,000	33.95%	3,350
22.	United Arab Emirates	16,00,000	3,00,000	18.75%	15,720
23.	U.K.	5,57,80,000	5,00,000	0.89%	12,800
24.	U.S.A	24,58,00,000	3,65,000	0.14%	19,780
25.	Yemen (PDR)	23,50,000	1,00,000	4.25%	430

Source :

i) For total population and GNP per capita: *Statesman Yearbook 1990-91*

ii) For Indian population: *Indians in South Asia*, edited by I.J. Bahadur Singh, 1984.

[Author's note: The sources and years for total population and Indian population being different, the percentages in Column (5) have to be considered with qualification.]

Enrolment of Overseas Students in Indian Universities and Colleges

	1987-88	1988-89	1989-90
Total from Overseas	10,611	11,759	12,606

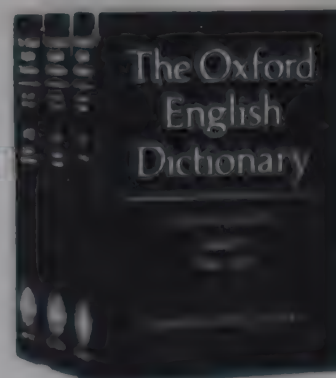
Country of Origin	Number of Students in India	
	1988-89	1989-90
Malaysia	824	870
Hong Kong	5	3
Singapore	16	18
Kenya/Tanzania/Uganda	2,430	2,999
Australia/Canada/New Zealand/Britain	155	104
Nigeria	339	239
Malawi/Zambia/Zimbabwe	29	25
Bangladesh/Sri Lanka	682	912
The Zambia/Ghana	17	9
Botswana	13	13
Barbados/Trinidad	25	9
Mauritius	224	164
Total from Commonwealth countries shown above	4,759	5,365
Other Commonwealth countries	41	-
All other overseas students	6,959	7,241
Total all students from abroad	11,759	12,606

Source: Compiled by Association of Indian Universities, 1990-91

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MANAGING COMPUTERISATION

A Study of an Educational Institution

Achal Kumar Malik*

The success of an organisation's plan for introduction of new technology (computerisation) largely depends on its managerial strategy and the way it is managed. Automation of the tasks and processes has the immediate effect of simplifying the work system. However, in such a case system components, including the human element, become more dependent on each other. Better work processes do take into account the views of all those who are connected with it.

The attitudes people hold towards the proposed technological change determine their response to the change; and failure to take these attitudes into account and to deal with them appropriately very often results in organisational collapses, communication breakdowns, strikes, etc. and non-cooperation in the implementation of changes (including computerisation) in the organisation. The reasons underlying resistance to change may be real or imagined. Therefore, management must balance their concern for technology and human sub-system change. Introduction of computerisation and industrial relations have close inter-relationship. It can range from excellent to catastrophic even in one enterprise.

Many of the organisations which introduce technology have an objective of increased labour productivity. However, greater productivity does not automatically result from an infusion of technology. It is necessary that it be managed efficiently. The technology need to be used to augment human capabilities, not replace, not automate, but augment. Technology and equipment are only tools, acceptance and utilisation are what make tools productive.

RESEARCH METHODOLOGY

The present study was designed to investigate the impact of change by the adoption of new technology (computerisation) in the working of an apex educational institution. Such an impact was studied in four areas, namely,

1. Nature of technological change in the organisational structure;
2. Nature of technological change in the work process;
3. Impact of technological change on motivation and morale of users, measured through degree of satisfaction; and
4. Impact of technological change on productivity of users.

Variables chosen

The operational definitions of the variables chosen are given below:

"User Category" was derived from the present category of post held by the respondents, which consisted of the following three categories of employees:

1. *Administrative* (Registrar, Finance Officer, Administrative Officer, Publication Officer, Documentation Officer, Assistant Publication Officer, Hindi Editor, Section Officers, Assistants, Private Secretaries, Senior Personal Assistants, Senior Stenographers, Junior Stenographers, Upper Division Clerks, Lower Division Clerks, Typists).
2. *Technical* (Computer Programmer, Librarian Grade I,II,III, Technical Assistant (Computer), Computer, Semi Professional Assistant).
3. *Research, Training and Consultancy* Senior Fellows, Fellows, Associate Fellows, Project Fellows, Project Associate Fellows, Senior Technical Assistants, Project Assistants).

The categories of 'Research', 'Research and Training' and 'Research, Training and Consultancy' were merged after looking at the responses of the users and further discussions with the officers coming under these categories. These three categories combined, in other words, represented the 'faculty' of the organisation.

"Age of Users": Age groups of users of technology.

"Educational Background of Users": Educational qualifications of users.

"Hours of Computer Use by Users in a Week": To serve as an indication of enthusiasm of adoption of tech-

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nological change rather than anything else.

"Organisational Structure": Organisational Structure is a formal, established pattern of relationships amongst the various parts of an organisation or institution. It is reflected in the number of hierarchical levels, span of control, and the way in which parts are organised and related to one another. It was measured by studying the organisational structure prior to and after adoption of new technology.

"Users' Views on Work Process": An organisation's work process enables one to study questions like the amount of feedback and help the users of technology have from their "supervisor" and "co-workers", amount of challenge in users work, etc. as a better work process helps an organisation to achieve its objective of introduction of new technology like increased productivity, etc. It was measured in two ways. The first measure was obtained on the basis of Comprehensive Scores. The second was obtained on the basis of Highly Critical Questions. It enabled the researcher to measure the Users' Views on Work Process.

"Users' Views on Motivation and Morale" measured through degree of satisfaction: 'Motivation' pertains to various drives, desires, needs, wishes, and other forces of a human being. 'Morale' describes the attitudes of the employees collectively towards all aspects of their work — job, organisation, working conditions, fellow workers, supervisors, and so on. A positive impact of technology on motivation and morale helps an organisation to achieve its objective of increased productivity, low costs, etc. In the present study the variable "Users Views' on Motivation and Morale" was measured on the basis of Comprehensive Scores and Highly Critical Questions Scores.

"Users' Views on Productivity": Its meaning varies widely. However, improved productivity can be measured by the overall improved effectiveness of the total organisation. Increased productivity results in increased speed, reduce design costs and lead times. A human factor model of productivity in almost all cases results in a higher level of productivity than anticipated and a sharp decrease in time spans. Users Views on Productivity were also measured in two ways as for Users Views on Work Process and Users Views on Motivation and Morale mentioned above.

Methodology

The study was conducted through a questionnaire, specially designed for the purpose. It consisted of two types of questions. One on the general impact analysis

and the other on highly critical questions. Comments on the different aspects of questionnaire were also encouraged. A five-point scale was used to obtain the responses of the users of computers. The highest score was given to that answer which was nearest to the particular section studying a particular aspect. Unstructured interview method was also used for obtaining the views of the senior officers (who got their work done) through the questionnaire. Before administering the questionnaire it was pre-tested and later suitably revised.

The impact analysis data of the study is based on 44 respondents who formed the total population of the computer users in the educational institution in question. These respondents were working with computers for administrative data processing; for research data processing; for word processing; and for other purposes.

Extensive review of official documents of the organisation was also done. The information upon which the text is based comes primarily from the questionnaire, the researcher's observation, individual interviews, literature reviews and the researcher's own experience of working on computers as an employee of the institute. The data thus collected were analysed and the results and their interpretations were provided. These data were based on simple statistical techniques like mean, chi-square.

The results and interpretations are provided in three sections, namely, Reporting of Raw Data, Analysis and Interpretations of Basic Data and Results and Interpretations of Impact Analysis Data.

The first section (which is a brief one) simply reports the 'Raw Data' (raw scores of responses on the questionnaire). The second section on Analyses and Interpretations of 'Basic Data' gives the said details on the delimited four variables. The third and the last section on Results and Interpretations of 'Impact Analysis Data' provides qualitative as well as quantitative findings on various objectives of the study.

RESULTS AND THEIR INTERPRETATION

Results: Reporting Raw Data

The raw data of 44 respondents on the variables of the study are given in Annexure I; it is these data which were subjected to analyses of various kind.

Results: Analysis of Basic Data

The basic data consisting of the delimited four vari-

ables are given in this section in the form of statistical tables. Table 1.1 gives the data on "User Category". Table 1.2 gives the data on "Age of Users". Table 1.3 gives the data on "Educational Background of Users" and Table 1.4 and on "Hours of Computer Use by Users in a Week". (Tables on page 21)

Results: Interpretation of Basic Data

User Category: At the outset it may once again be emphasised that the interpretations which are given in this section are based on the views of the users and not on any actual record maintained by the organisation.

Results in Table 1.1 show that of the total users, 40.91% belong to the "Administrative" user category, 11.36% belong to the "Technical" user category and 47.73% belong to the "Research, Training and Consultancy" (faculty) user category. The results in the users category show that it is as per the strategy of the organisation for introduction of computerisation. The objective of the organisation at the time of introduction of technological change was to provide this facility for the faculty; out of the 40.91% administrative user category some of them were attached to the faculty as secretarial staff. This issue was further analysed in terms of Question No.8 of the Questionnaire in which the following question was asked:

Are you working with computers?	Yes/No
If so, how are you using it (tick all that apply)	<ul style="list-style-type: none"> — for administrative data processing — for research data processing — for word processing — others, pl. specify

Replies to this question revealed that out of the total work done by the administrative category of staff, 9% was for administrative data processing and about 25% for word processing (both administrative and faculty and technical). This once again seems to be in consonance with the organisational strategy of introduction of this technological change. That is, there was more use of computers for Faculty and Technical staff and less for word processing.

When the figures of the total number of users in each User Category are compared with the total number of employees within that category it is found that only 20.93% of the Administrative category are using the facility and 79.07% are non-users. Further, 32.80% of the Research, Training and Consultancy (faculty) are using the facility while 67.20% are non-users. These

percentages also show that Research, Training and Consultancy (faculty) staff is using the computer facilities more than the administrative staff.

A question may be raised on the 79.07% non-users of technology in the administrative category of the educational institution. The investigator's intimate knowledge of the organisation, personal discussions with senior officers as also observations revealed that this is because most of the senior and junior administrative, finance and publication officers are not using it. Like wise, most of the clerical staff like Lower Division Clerks, Upper Division Clerks are also not using it. The reasons for this, perhaps, are that they are not being encouraged to use this technology as the initial objective of introduction of technology was to facilitate research and quality material used for training programmes. Secondly, their nature of work does not involve use of technology directly. Thirdly, lesser use may be because of less number of computers available or no 'personal' computers available in the educational institution.

Regarding non-users in the Research, Training and Consultancy (faculty) category it is found that Director, Dean, Consultants and some of the Unit Heads are not using the facility directly because of their seniority in position; they also had not been given 'personal' computers in spite of some requests. However, they are duly and sufficiently assisted by their junior staff. Likewise, some of the new research staff is not making use of the facility. Therefore, it can be concluded that the technological change has been executed by the institution in terms of its set objectives.

62.50% of the Technical category (including library) are using the computer facility. It will be difficult to generalise on the percentage of users in the technical category because the population size is too small to draw generalisations. Even then a higher percentage is expected in this category because it consists of Computer Programmer, Computer Assistant, Computer and Library staff.

Age Distribution of Users: Table 1.2 report that of the total users under study 9% users are less than 25 years of age, 64% users are in the age-group 26 to 35, 25% in the age-group 36 to 45, and 2% are in the age group 46 and above. Proportionate figures for making a definite statement were not available. Percentage figures show that out of the total users 73% are less the latest versions of technology. Moreover the organisation will need to cope with better and better training facilities to derive

maximum benefit from the introduction of technological change. This will be so because younger persons find challenge in their work and are more career-oriented.

Educational Background of Users: Table 1.3 shows that out of the total users 16% have high school education, 32% bachelor's degree, 25% master's degree and 27% doctoral degree. This was rather expected because of the organisation being a 'professional' educational institution, where technological change was planned and introduced mainly for well qualified persons.

Hours of Computer Use by Users in a Week: The last Table 1.4 on Basic Data indicate that of the total users, 20.46% are using computer facilities for 0-5 hours in a week, 15.91% for 6-10 hours in a week, 27.27% for 11-15 hours in a week, 9.09% for 16-20 hours in a week and 27.27% for 21 and more hours in a week. As indicated earlier, the Computer Centre of the Institution is equipped with three WIPRO PC-ATs, IBM PC AT compatible totally dedicated for data processing purposes. In addition, ten PC XT's are used primarily for training purposes. On an average computer users are making use of facilities for 11-15 hours in a week. Looking at the factor that the Computer Centre of the organisation closes from 8.00 p.m. to 9.00 a.m., the facilities available, their utilisation, and other factors (like computer down time, etc.), show that the facilities are being utilised by the computer users reasonably well and there is enough enthusiasm.

Results and Interpretations of Impact Analysis Data

As per the design of the study, the data related with the impact of technological change in question fell in two major areas. The first area consisted of data analysis for general impact analysis. The other one formed part of in-depth analysis for investigating the impact of technological change in relation to the user category.

Data on general impact analysis are reported in four qualitative/quantitative tables as indicated below; Tables reporting the analysis are given thereafter.

The organisational chart given at Fig. 1.1 indicates that the organisation's structure in 1980-81 was not a complex one. The narrow functions of the organisation and limited staff strength made the structure simple. The processing of data was being done manually and as the situation demanded.

Fig. 1.2 shows that the Institute's organisation structure has changed considerably when compared with the structure given in Fig. 1.1 (1980-81). Various departments have come up. It has become a decentralised structure. The organisation's functions are looked after by different specialised departments. There has been a change in the administrative and financial structure as well. This further indicates the nature of change in the organisation's activities and increasing responsibilities being carried out by the newly created departments. The above Fig. also indicates that 'Data Base' cell and 'Electronic Data Processing and Reprographic Unit'

Table 1.5 – Impact Analysis Data on "Comprehensive Scores" and "Scores on Highly Critical Questions": Users' Views on Work Process

Score	Frequency : Comprehensive Scores	Score	Frequency : Score on Highly Critical Qs.(14,17,19,20,21)
22-24	1	6-8	1
25-27	1	9-11	1
28-30	3	12-14	7
31-33	5	15-17	7
34-36	5	18-20	15
37-39	8	21-23	9
40-42	11	24-26	2
43-45	5	27-29	2
46-48	4		
49-51	1		
Total	44	Total	44
Mean = 38.25		Mean = 17.88	

also have been established. They are providing support facilities to all the units including administration and finance in their functioning. The facilities are of centralised nature.

The Fig. 1.3 depicts the organisation's structure in 1989-90. When compared with the one in 1980-81 one finds that it has changed considerably because of the diversified nature of activities and expanded role of the organisation. Data Base and Computer Centre (EDPR) are in the control of two different authorities. Data Bank is now in the charge of an Associate Fellow of the Educational Planning Unit. This is somewhat similar to the one at the time of the establishment of the Data Bank but with the difference that at that time in the hierarchy it was directly under the supervision of Director/Consultant. These facilities are still centralised and the organisation's departments use these facilities as earlier. It can be said that the present organisation's structure is of complex nature where different departments are there but they make use of centralised computer facilities.

Looking at the need to adapt the organisation as far as development in connection with the new structure is concerned, the nature of change brought in by the organisation in the organisational structure in its effort to introduce technological change is as follows:

1. It was unstructured in the first phase, i.e. prior to the computerisation process (Fig. 1.1).
2. In the second phase Data Bank and later EDPR

Unit were established (Fig. 1.2).

3. In the third phase the Data Bank and the Computer Centre(EDPR) became separate units (Fig. 1.3).

Research (Katz and Kahn, 1980) has indicated that under stable conditions, computers tend to reinforce centralisation. Under dynamic conditions, computers reinforce decentralisation. One can thus conclude that the conditions in the Institute are stable as it has a centralised system of computerisation.

The above impact analysis data on comprehensive scores of "Users' Views on Work Process" show that its frequency distribution is a little skewed towards the right. However, no serious conclusions can be drawn from this trend because it was not subjected to any test of significance. The indications are that if such an exercise is taken in hand, distribution is likely to turn out to be normal. Nevertheless, it is noticed that the frequencies above average are more than the frequencies below average. This could be taken as some sort of an indication that computer users are satisfied with the work process provided by the organisation. The interpretations of the results given above for comprehensive scores also seem to be true for the frequency distribution of scores on highly critical questions.

From the results and their interpretations given above, one can thus conclude that in the organisation efforts are being made to keep the work process congenial for the introduction of technological change. This also seems to be so as revealed by the question-wise

Table 1.6 – Impact Analysis Data on "Comprehensive Scores" and "Scores on Highly Critical Questions": Users' Views on Motivation and Morale measured through degree of satisfaction

<i>Score</i>	<i>Frequency : Comprehensive</i>	<i>Score</i>	<i>Frequency : Scores on Highly Critical Qs. (27,28,35,36)</i>
35 – 36	2	4 – 6	1
38 – 40	2	7 – 9	14
41 – 43	2	10 – 12	13
44 – 46	8	13 – 15	12
47 – 49	13	16 – 18	3
50 – 52	9	19 – 21	1
53 – 55	3		
56 – 58	2		
59 – 61	3		
Total	44	Total	44
Mean = 48.15		Mean = 9.15	

analysis as well as personal discussions by the Investigator with some of those concerned with the subject, because (i) there are less interruptions in the work of the users, (ii) the users seem to have more control of their work process, and (iii) there is a ready availability of help when they have a problem at hand relating to the use of computers.

The frequency distribution of comprehensive scores of "Users' Views on Motivation and Morale" measured through degree of satisfaction show that it is nearly normally distributed. However, this trend was not subjected to any test of significance. The indications are that if such an exercise is taken in hand the distribution will be found to be a normal one. Further, it is noticed that the frequencies below average are nearly the same

as the frequencies above average. This is some sort of an indication that computer users' motivation and morale is more or less "average".

Frequency distribution of scores on highly critical questions shows that on the lowest as well as the highest scores the number of persons sharply decline whereas in the middle values the number of persons are equally distributed on the middle scores. The frequencies at the extreme values are too small to be taken into account. If these frequencies are left out, then the results show that the number of persons on the middle value of scores are equally distributed on the middle values. The Investigator did not like to draw any definite conclusion from these findings as the frequencies were too small to generalise the issue.

Table 1.7 – Impact Analysis Data on "Comprehensive Scores" and "Scores on Highly Critical Questions" : Users' Views on Productivity

<i>Score</i>	<i>Frequency : Comprehensive</i>	<i>Score</i>	<i>Frequency : Scores on Highly Critical Qs. (38 to 43)</i>
33 – 35	1	18 – 20	1
36 – 38	–	21 – 23	1
39 – 41	–	24 – 26	9
42 – 44	1	27 – 29	22
45 – 47	3	30 – 32	11
48 – 50	11		
51 – 53	10		
54 – 56	10		
57 – 59	8		
Total	44	Total	44
Mean = 51.90		Mean = 27.27	

Table 1.8 – Indepth Impact Analysis Data: Chi Square Test of Independence to Test the Relationship between User Category and Users' Views on Work Process as measured through Comprehensive Scores

<i>Use Category</i>	<i>Users with Below Average Comprehensive Scores</i>	<i>Users with Above Average Comprehensive Scores</i>	
Administrative	4 (11)	14 (11)	Chi Square Value = 6.75 Significant
Research Training & Consultancy(faculty) (including Technical)	15 (11)	11 (11)	
Total	19	25	= 44

One can conclude from the results and their interpretations given above, that the motivation and morale of the computer users is more or less "average".

Table 1.7 indicates that the frequency distribution on comprehensive scores is skewed towards the right. Serious conclusions can be drawn from this trend only when it is subjected to any test of significance. Yet it can be stated that the frequencies above average are much more than the frequencies below average. This can be taken as an indication that the computer users' views on productivity are that the technological change has resulted in its increase.

The interpretation of the results given above for comprehensive scores also seems to be true for the frequency distribution of scores on highly critical questions.

As is known, with technological change, given the same amount of input, a better output is possible (speed, accuracy, cost). The results show that the users do feel the same.

If a detailed analysis is made of the productivity of the Institution before computerisation (this was not to be done within the scope of the present study), one will find that there has been an increase in the productivity of the Institution in terms of number of researches completed and in hand, amount of research data analysed or being analysed, etc. On the administrative front also there are reports that systematic efforts have been made to bring possible areas of administration under computerisation, e.g. automatic granting of annual increments excepting in cases involving clearance of Efficiency Bar. In accounts the Institute computerised its pay-roll in 1982. On the Library front data base of the library books being acquired under different

subject heads is being built up. And, computerised monthly list of additions to the library is brought out.

However, when one combines the results obtained from the users' views on productivity (high) and the results obtained from the users' views on motivation and morale (average), one tends to conclude that the technological change is being accepted by the users because of their personal enthusiasm rather than due to a well directed and well planned activity of the management, although the management is certainly making efforts to smoothen the work process.

In-depth Analyses: user category and impact

The 2x2 contingency table providing the data for studying the relationship between User Category, on the one hand, and Work Process, on the other, is given in Table 1.8.

The calculated value of chi square 6.73 is based on the equal probability of 11 in each cell within the contingency table. This calculated value has been found significant in comparison to the table value at 1 degree of freedom (3.84). This indicates that there is relationship between user category and their views on work process. A look at the cell frequencies in the contingency table shows that as far as work process is concerned, more persons belonging to the administrative staff report above average views. In other words, they feel a higher impact of technological change in the organisation. These results are not very surprising because the introduction of computers in the working of administration many a time result in better work process. Those who are in the faculty start making use of computers much earlier. It percolates to the administrative culture later. That is why they are feeling a greater degree of impact.

Table 1.9 – Indepth Impact Analysis Data: Chi Square Test of Independence to Test the Relationship between User Category and User's Views on Multivation and Morale (measured through degree of satisfaction) as measured through Comprehensive Scores

<i>User Category</i>	<i>Users with Below Average Comprehensive Scores</i>	<i>Users with Above Average Comprehensive Scores</i>	
Administrative	10 (11)	8 (11)	Chi Square 3.27
Research, Training and Consultancy(faculty) (including Technical)	16 (11)	10 (11)	Not Significant
Total	26	18	= 44

Table 1.10 – Indepth Analysis Data : Chi Square Test of Independence to Test the Relationship between User Category and Users' Views on Productivity as measured through Comprehensive Scores Users

User Category	Users with Below Average Comprehensive Scores	Users with Above Average Comprehensive Scores	
Administrative	11 (11)	7 (11)	Chi Square = 3.82 Significant(Nearly)
Research Training & Consultancy(faculty) (including Technical)	10 (11)	16 (11)	
Total	21	23	= 44

The 2x2 contingency table providing the data for studying the relationship between User Category, on the one hand, and Motivation and Morale, measured through degree of satisfaction, on the other, is given in Table 1.9.

The calculated value of the chi square 3.27 is based on the equal probability of 11 in each cell within the contingency table. The table value at 1 degree of freedom is 3.84. The calculated value of the chi square is a little less than the table value. Therefore it was concluded that the difference was not significant. This means that there was no relationship between the user category and the users' views on motivation and morale as measured through comprehensive scores.

The 2x2 contingency table providing the data for studying the relationship between the User Category, on the one hand, and Productivity on the other is given in Table 1.10.

The calculated value of chi square for the above data is based on the equal probability of 11 in each cell within the contingency table. This calculated value has been found nearly significant in comparison to the table value at 1 degree of freedom (3.84). Therefore, it was safe to conclude that there was a relationship between the user category and the users' views on productivity. The cell frequencies showed that more persons in the faculty category had above average views on productivity. There can be two reasons for this. First, the faculty involved in giving views on productivity was also involved in recommending the change in technology. Secondly, the actual productivity figures given in an earlier section also show that the faculty is able to achieve more after the introduction of technological change.

Summary of Results and Interpretations

Two significant lines of inquiry were pursued in this study. The first tried to identify those factors which rated high, moderate and low satisfaction levels on the three aspects under study. The second focussed on the relationship between user category and the work process; user category and morale and motivation measured through degree of satisfaction and user category and productivity. Also some very critical questions related to the particular aspect under study were identified and their responses analysed. This was done with a view to know if some significant findings emerged on some particular aspects of work process, job satisfaction and productivity.

The summary of results and interpretations given above were mostly based on the analysis and interpretation of data provided in the preceding section. However, it will not be out of place to record some other results which were not systematically analysed but which became incidentally available to the investigator in analysing various data. These results are as follows:

The analyses of the responses to the questionnaire established the following :

Personal Data

1. 36% computer users of the sample size in the institute are
2. Computer user respondents are using the computer facilities either for administrative data processing, research data processing (20.45%), word processing (25%), library, accounts data processing only or a combination of these e.g. 32% users are using computer facilities both for research data processing and word processing and

9% users are using it for administrative data processing, research data processing and word processing also.

Work Process

1. Very few staff members got the training from other computer training institutes or suppliers of computers. Most of them had on-the-job instruction about computer working. A few of them had the institute's computer room formal training. About 90% of the computer users feel that they require more training.

Organisation's approach to computerisation: and employees' degree of satisfaction thereto:

1. There is a general feeling that there are bottlenecks, which affect the flow of computer work. About half of the users find some frustration in getting their computer work done.
2. Most of the computer users feel that there is some strain due to computer work. The degree of strain however varies from very much to very little. Only 20% of the users felt that there is no strain whatsoever due to computer work. This may be because of the limited computer work they do as there are about 20% respondents whose 80% and more work time is involved in doing things that are not directly related to their computer job done.
3. About 90% of the computer users are satisfied with the conditions of work in the computer room.
4. 75% of the respondents are satisfied with the hardware and software available in the computer room of the institute.

Productivity

1. On responses to highly critical questions 70% respondents have indicated that computer work has resulted into overall increased productivity.
2. On the impact of computer on reduction of paper work 45% respondents have rated it very much; 45% somewhat and the remaining 10% a little.
3. The use of computer has reduced rework in the following order 70% very much; 20% somewhat and 5% a little.
4. 40% respondents feel that computers have reduced costs very much; 30% somewhat; 20% a little and 10% very little.
5. 35% respondents have indicated lack of management support as limiting factor of productivity. An

equal percentage has rated the factor of work being too tedious or repetitive as a limiting factor of productivity. The remaining 30% have indicated other reasons for the limiting factor of productivity.

SUMMARY OF THE RESULTS AND THEIR INTERPRETATION

The salient findings of the study, after discussing the results, are given below :

1. The objective of introduction of technology, namely, more use by 'faculty' and less for word processing work is being achieved.
2. Most of the computer users are young (less than 35 years) which augurs well for the organisation since younger manpower is less resistant to change.
3. Most of the computer users are highly educated, mainly because the organisation is a 'professional' educational institution where technological change was planned and introduced mainly for well-qualified persons.
4. Computer users are using the computer facilities reasonably well and there is enough enthusiasm.
5. Users indicate that in the organisation efforts are being made to keep the work process congenial for the introduction of technological change. There are less interruptions in the work of the users. The users seem to have more control of their work process and there is a ready availability of help when they have a problem relating to the use of computers.
6. The motivation and morale of users is more or less average.
7. Technological change has resulted in increased productivity of users.
8. Looking at the results obtained from the users' views on productivity (high) and the results obtained from the users' views on motivation and morale (average), it indicates that the technological change is being accepted by the users because of their personal enthusiasm rather than well-planned activity of the management.
9. There is relationship between the user category and their views on work process. More administrative persons have above-average views.
10. There is no relationship between the user category and users views on motivation and morale as

measured through comprehensive score.

11. There is relationship between the user category and the users' views on productivity. More persons in the 'faculty' category had above average views.

LIMITATIONS OF THE STUDY

Before weighing the results given above it is essential to know the limitations of the study. All research studies have limitations because they are a "delimited venture". Unless these limitations are specifically stated, wrong conclusions can be derived from the findings resulting in wrong generalisations. Therefore, the limitations of the study need to be taken in the right perspective. Some of the important limitations of the study are as follows :

1. The study is based only on one educational institution. Therefore, generalisations derived in the study are based on a very limited sample.
2. The study was delimited to study the computer users of the Institute only. The views of the participating trainees were not obtained.
3. Even though all the computer users of the organisation have been covered in the study yet it is felt that the conclusions have been derived from limited data.
4. In-depth analyses have been done only on user category and not on other delimited variables.

SUGGESTIONS

Based on the findings of the research study, the following suggestions are made for organisations and researchers for managing technological change successfully :

Suggestions for Organisations

1. The rank and file employees be involved in the design and implementation of the new system as they are the best source of feedback about the various aspects of the workability or non-workability of the new system.
2. The employees be assured that their advancement prospects will be safeguarded and that everyone benefits (materially, socially, etc.) from the adoption of technology.
3. The adoption of technology should not be an overnight change; instead, it be a gradual one.
4. Support for computerisation must come from top management downwards.

5. Management must have a well directed and well planned activity to motivate the computer users and keep their morale high.
6. Management must balance their concern for technology and human subsystem change.
7. Organisation's work process must provide to its users an environment where there are less interruptions in their work, ready availability of help when they have a problem relating to the use of computers and where they have more control of their work process.
8. Training to computer users be provided after assessing their needs and be a continuous process so that computers are not used as word processors only.
9. A comprehensive planning model for implementation of the system be developed by involving the system users. Though this will cause immediate delays, it will reduce the need for large scale changing.
10. The participation of employees should be encouraged and rewarded. It will improve the motivation and morale of the employees as it will promote a 'we' attitude rather than an 'us and them' feeling.
11. A high level of motivation and dedication needs to be maintained over a long period of time as the most difficult problems to deal with are long-term maintenance needs.
12. For jobs with limited flexibility, a clear career ladder with measurable performance criteria needs to be designed.
13. A formal organisational system be established to ensure

Suggestions for Researchers

1. There is a need to replicate the research study by taking samples and detailed data from two or more organisations.
2. Comparative research studies should be undertaken taking data from educational and private sectors for studying the impact of technological change on the various aspects of the organisation.
3. In-depth analysis be done on the various other variables of the study like age, sex, educational qualifications, etc.
4. More robust techniques of statistical analysis like correlation, chi square need to be used for atleast all the delimited variables chosen.

Table 1.1 – User Category

<i>Total Users Total</i>	<i>User Category</i>	<i>Total Employees*</i>	<i>Within Users</i>	<i>Category Non-Users</i>
18 (40.91%)	Administrative	86	20.93%	79.07% 100%
5 (11.36%)	Technical (including Library)	8	62.50%	37.50% 100%
21 (47.73%)	Research, Training and Consultancy (faculty)	64	32.80%	67.20% 100%
44	Total	158		

* includes project staff also.

Table 1.2 – Age Distribution of Users

<i>Age Group</i>	<i>Frequency</i>	<i>Percentage of Population of Users</i>
less than 25 years	4	9.09
26 to 35 years	28	63.63
36 to 45 years	11	25.00
46 and above	1	2.28
Total	44	100%

Table 1.3 – Educational Background of Users

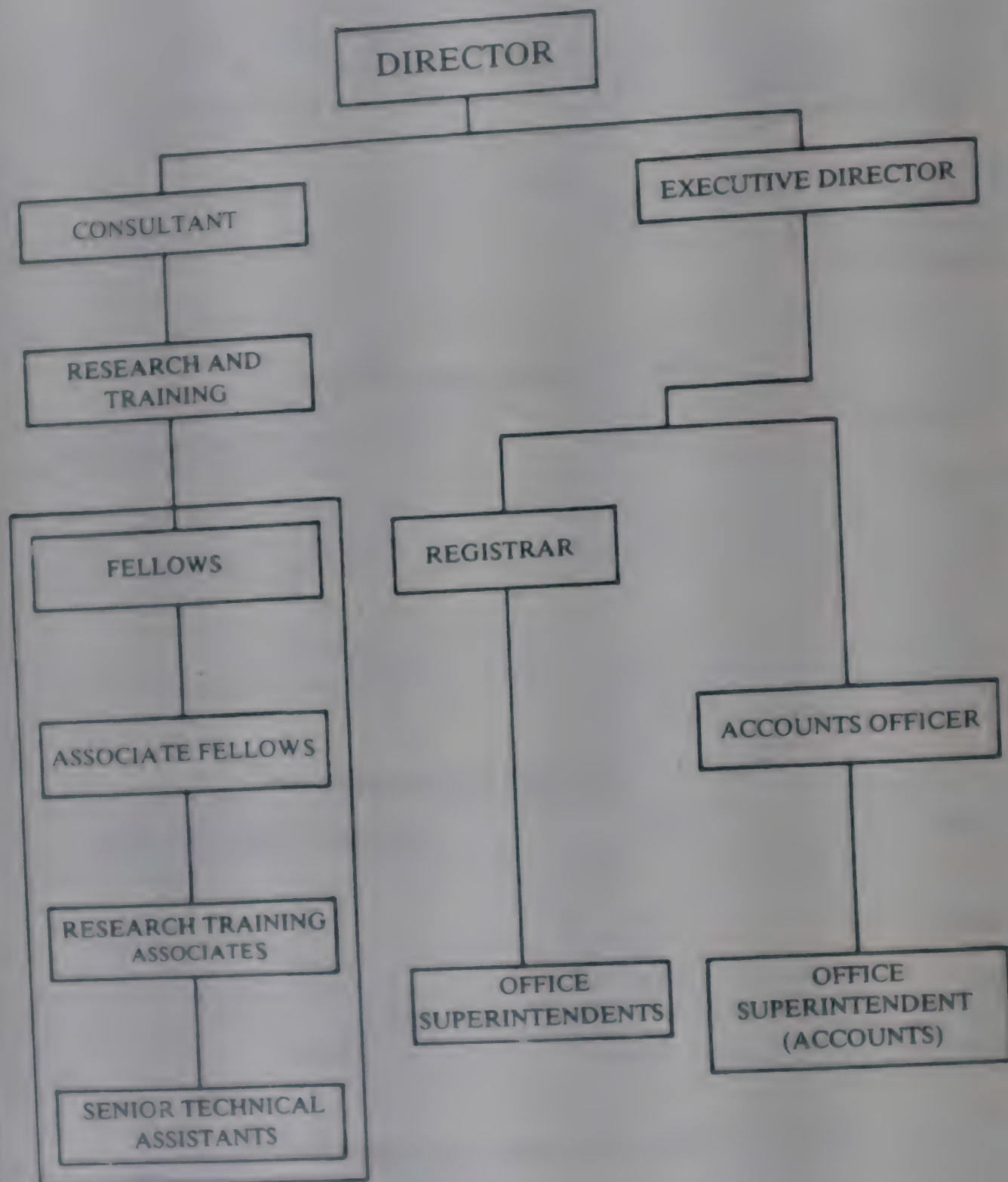
<i>Educational Level</i>	<i>Frequency</i>	<i>Percentage of Population of Users</i>
High School	7	15.91
Bachelor's degree	14	31.82
Master's degree	11	25.00
Doctoral degree	12	27.27
Total	44	100%

Table 1.4 – Hours of Computer Use by Users in a Week

<i>No. of Hours</i>	<i>Frequency</i>	<i>Percentage of Population of Users</i>
0–5	9	20.46
6–10	7	15.91
11–15	12	27.27
16–20	4	9.09
21 and above	12	27.27
Total	44	100%

ORGANISATION STRUCTURE

1980-81



DATA OF ALL FACULTY PROCESSED MANUALLY
AND IN A MANNER WHICH SUITED A SITUATION

Fig 1.1

ORGANISATION STRUCTURE

1981-82

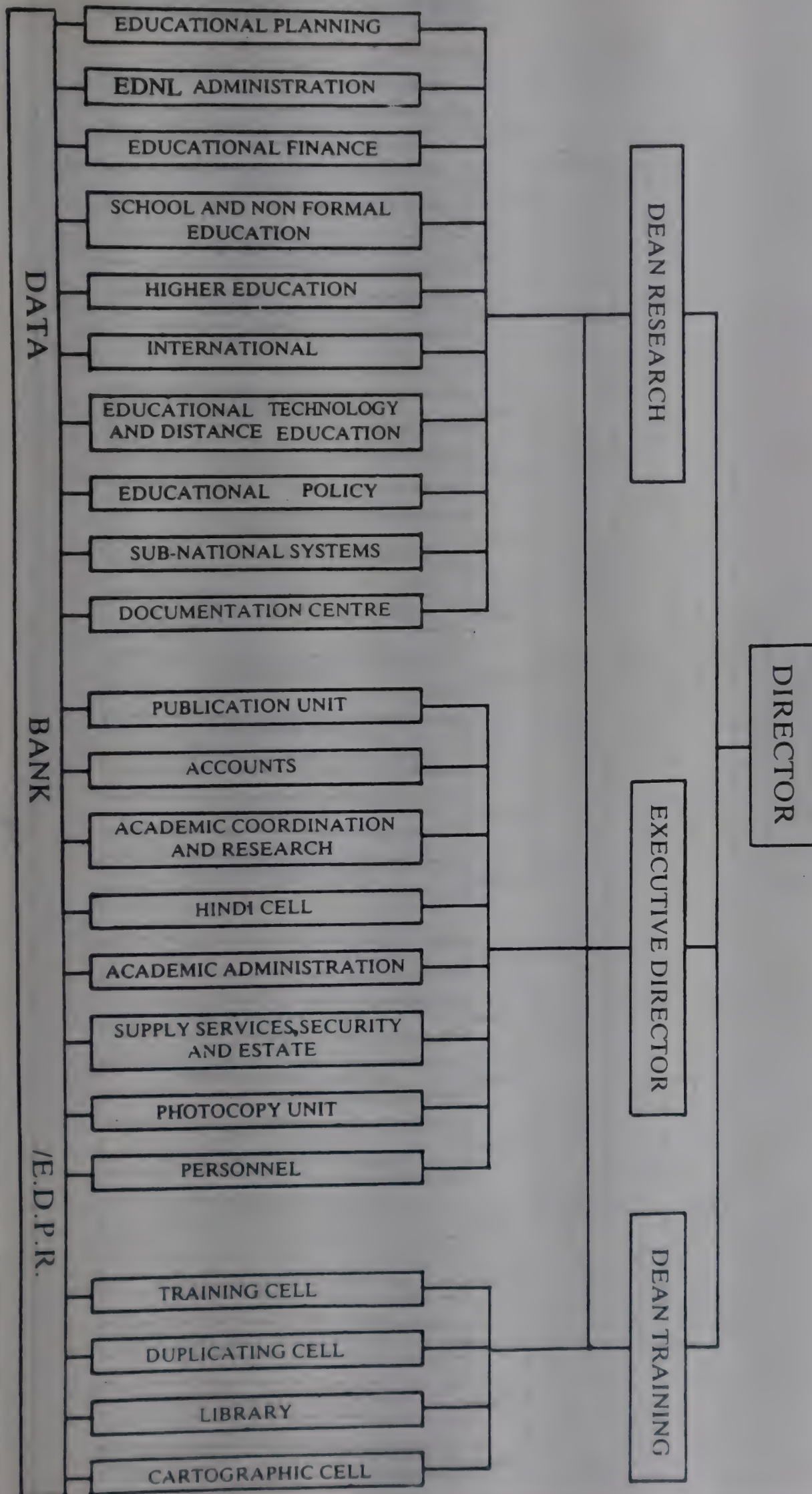


Fig 1.2

ORGANISATION STRUCTURE

1989-90

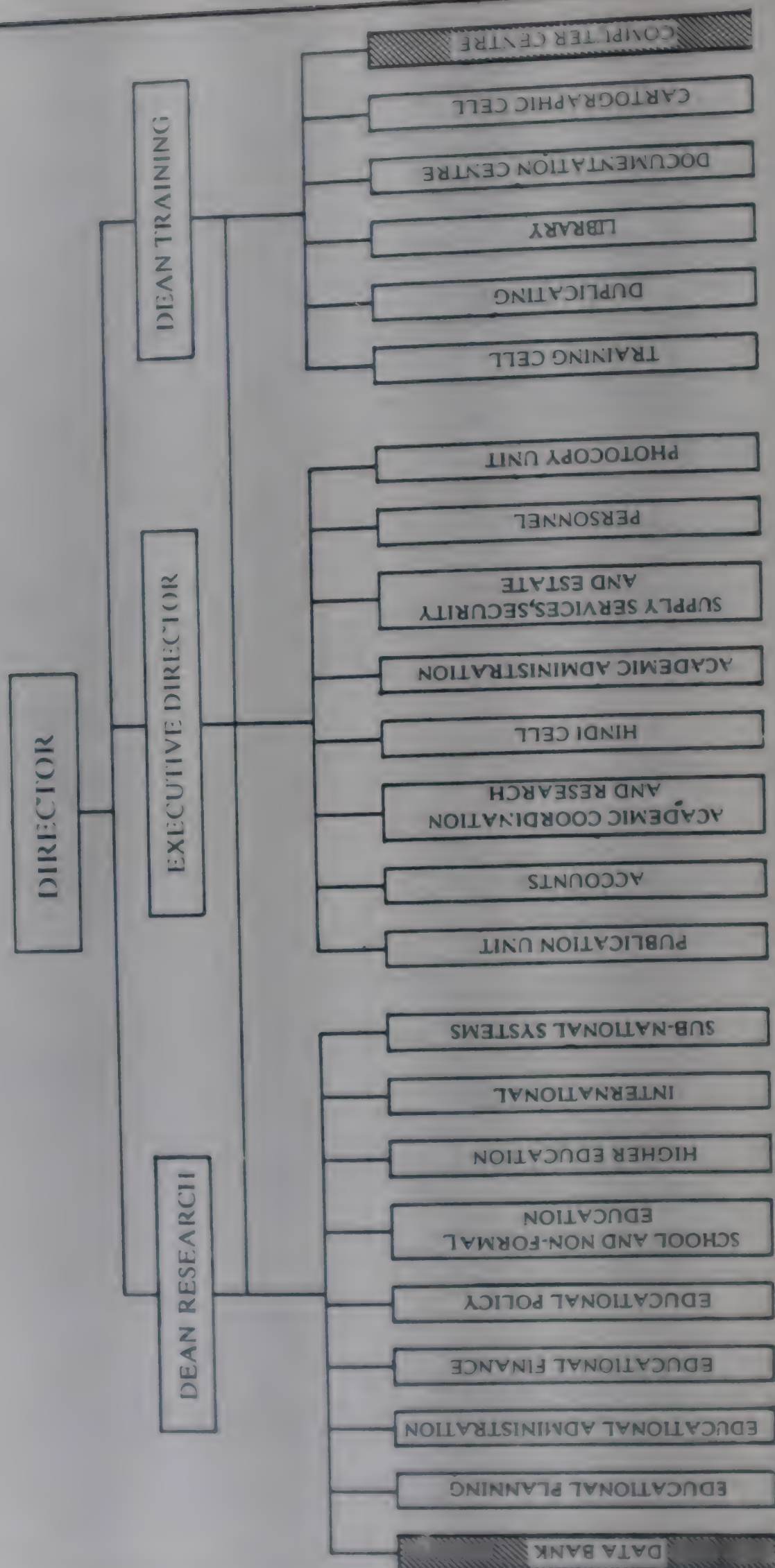


Fig 1.3

RAW DATA

S. No.	User Category	M/F	Age	Ednl. Qual.	Hours Working on Computers in a week	Type of Work on Computers	Work Process Score		Satisfaction Score		Productivity	
							Compre- hensive Qs	Highly Critical Qs	Compre- hensive Qs	Highly Critical Qs	Compre- hensive Qs	Highly Critical Qs
1.	A	M	B	B	E	ABC	44	23	46	9	57	57
2.	A	M	B	B	E	ABC	40	20	61	18	51	51
3.	A	M	B	B	E	AC	39	18	48	10	52	52
4.	A	M	B	B	B	C	39	20	59	18	47	47
5.	A	M	B	C	B	C	33	21	50	14	49	49
6.	A	F	B	B	C	ABC	42	18	53	13	46	46
7.	A	F	B	B	C	C	22	6	35	9	45	45
8.	A	F	B	C	D	C	40	19	46	11	52	52
9.	A	F	B	B	C	A	46	23	47	9	51	51
10.	A-P	F	C	B	A	C	48	25	47	12	54	54
11.	A-P	F	A	B	D	C	45	21	44	9	50	50
12.	A-P	F	B	A	C	C	41	17	47	12	52	52
13.	A-P	M	B	A	E	BC	40	15	52	13	50	50
14.	A-P	M	A	A	B	C	C	29	45	9	57	57
15.	A-P	M	B	A	E	C	40	20	48	9	53	53
16.	T	M	B	C	E	A,B,C	28	12	48	9	57	57
17.	T	M	C	A	C	D(LIB)	41	18	48	14	57	57
18.	T	M	B	B	E	D(ACM)	47	22	57	13	56	56
19.	T	M	A	B	E	D(LIB)	37	19	57	19	57	57
20.	T	M	A	B	E	D(LIB)	41	19	50	11	50	50

Professional Development for Academic Administrators

Lena D'Souza*

Introduction

Universities in India today are confronted with many challenges with respect to demographic trends, scientific/technological trends; changes in industry demands, changing job-slots and employment prospects, and the increasing number of students seeking admission to higher education.

The institution/environment interface is becoming more and more complex because of these challenges. Central to these challenges is the increasing demand that colleges and universities provide higher quality teaching and research, quality in terms both of relevance and of high standards. Universities are being challenged to be dynamic as never before. These changes should have resulted in changes in the administration structure of the university. Unfortunately this has not happened. The prevalent system of administration was evolved when the university system was small and the role of the university was limited largely to teaching, with very little emphasis on research and extension. But the growth of higher education in India, particularly university education has since independence been phenomenal in terms of universities established, students enrolled and courses offered.

In a consultancy meeting organised by the UNESCO, as far back as 1979, some of the existing problems and gaps in the administration of higher education were identified as :

- lack of awareness of basic concepts of planning;
- lack of expertise in converting plans into action;
- lack of financial management and decision making skills;
- insufficient coordination of various activities & with other departments;
- poor interpersonal relations at all levels;
- insensitivity to problems of client (student) groups;
- inability to evolve and manage appropriate norms,

rules, work procedures and systems; and

- inability to change from a maintenance to a developmental orientation.

It is found that these problems still continue to exist within most colleges and universities, leading to ineffective use of resources; declining credibility of the system in the eyes of the society and declining morale of those working within these institutions.

Need for Professional Development

As higher education continues to face difficult times, there is a need for a new approach to deal with the new pressures and the unprecedented opportunities. It is not enough to be only administrators. Colleges and universities of today need a leader and a visionary. Most of the academic administrators were trained for academic teaching and research. They were primarily selected for their scholarly accomplishment and not for their management and leadership potential. Today they find themselves in senior administrative posts as vice-chancellors, principal, heads of departments, deans and registrars. Movement into administrative positions is rarely accompanied by management training. There is little formal preparation for the job and very little opportunity for renewal. Very often, it is a case of losing a good academician and getting a bad administrator. Surely, administrators have managed well even without such training, but now the territory is getting larger and more complex day by day. Given the uncertainty of the future, administrators in colleges and universities cannot allow organisations to drift. Careful expert management is now imperative. Unfortunately management of education is still a concept that stimulates negative reaction among academics. As a result institutions tend to neglect management concepts and practices. But acute problems faced by a number of institutions necessitate an informed style of management. Of course most new administrators learn the mechanics of their roles and develop administrative and leadership talents by performing them. But as we enter into the 21st century higher education administrators can no longer solely depend upon on-the-job training.

Although on-the-job training is the best, it takes time

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and mistakes can be costly to individuals and institutions. Reading important works in management literature is probably the most common way to acquire an understanding about management and leadership but it is a passive learning mode. A more active alternative is going through professional development programmes. Professional development programmes are programmes directed towards increasing the capacity of the individual to provide leadership and to be effective in their work and thereby improve the effectiveness and quality of a college or university (Green' 87). The aim of such programmes is to increase knowledge, enhance management skills, update knowledge of leadership techniques, broaden perspectives and stimulate creativity. Recognising this need many universities in the USA have professional development programmes for academic administrators. At the Harvard University, the Institute for Educational Management has a professional development programme for Presidents (equivalent to Vice-Chancellors) and senior executives of American universities. Sharon Mc Dade, Director of the institute in her report on interviews with some of the participants of Education Management says that they have found the programmes "incredibly challenging" and "far beyond their ambitious expectations" (1984).

Responsibilities of Administrators

To understand the significance of how professional development can aid administration, it is necessary to know what administrators are expected to do and what their responsibilities are. There is a rich discussion on the tasks, roles, responsibilities of senior executives in the literature of leadership management. The most often cited responsibilities are summarised here. The list could serve as a checklist for analysing one's professional development needs.

Development of Vision

The most important role of a senior executive in higher education is to provide leadership. Alongwith his/her team, he/she should establish a vision for his/her institution, that includes the past, the present and the future. The vision must relate to the larger aims of culture and society (Kerr 1984). To turn this vision into a reality, the leader must utilize the techniques of leadership and define a mission for the institution, spell out the goals and objectives, create a frame of reference, provide direction, establish plans, strategies, programmes, schedules, and procedures (Blake et al 1981). The leader must then ensure that these plans and strategies are efficiently and effectively implemented within the value framework (philosophy) of the institution and the society (Keller 1983).

Development of innovation

Heads of institutions have a special responsibility to innovate, initiate and create by being agents of change. They must create institutions capable of being alert to the changes in the environment and making responses to meet future needs of the society (Kerr 1984, Keller 1983).

Development of a decision-making framework

A leader must make wise decisions based on the reality of the present while laying the ground-work for the realisation of the future.

Various definitions of the term "decision" focus on some of its important features: judgment, conscious and deliberate choice of alternatives, problem-solving, effective and efficient achievement of goals and objectives. In simple words, 'decision' may be defined as the best course of action chosen by an administrator from amongst several alternatives as the most effective means at his/her disposal for solving the problem and achieving goals and objectives. Sound decisions are characterised by judicious purposive and rational behaviour.

To quote Chester Barnard: "The fine art of executive decision consists in not deciding questions that are not now pertinent, in not deciding prematurely, in not making decisions that cannot be made effective and in not making decisions that others should make." These observations provide a good insight into some of the operational parameters of decision-making.

Development of resources

Development of resources in terms of human resources, materials, equipment and money. Without resources, visions and goals cannot be a reality. Resource acquisition, optimization, allocation and distribution are keys to the success of all leadership. Best decisions fail due to lack of resources such as trained personnel, inadequate funds, facilities, space, machines and so on. The most important resource limitation is, however, human beings, whose vision competencies, understanding, skills and attitudes determine what they can and cannot do. Efforts should therefore be made to raise the competencies of those working within the institution.

Responsibilities for operations

Senior administrators are responsible for all the operations of the institutions as well as the processes that make the operations work and interrelate. These responsibilities include securing staff, enforcement of values, standards, rules, procedures and policies. This category requires the most direct use of Millicet's (1976)

techniques of leadership which include staffing, coordinating, planning, directing, managing, controlling, monitoring, supporting, integrating, maintaining, motivating, guiding and appraising.

Development of relations with environment

Universities and other academic institutions do not exist in a vacuum. They are part of a larger socio-economic-political-cultural system. The forces from this system act and interact upon the educational system. It is therefore the responsibility of every administrator to understand and know the environmental dimensions. To meet this responsibility administrators must be alert to developments in the external world which will have an impact on the institutions' present operations and future goals. They must evaluate and synthesize signals from the environment and use them to expand and strengthen the institution.

Developing people

Higher education would have no purpose without faculty and students. Finding and developing people is "one of the most important tasks of a manager if not the most important" (Rausch 1980). In higher education this responsibility is heightened by the society's expectations that colleges and universities will develop the leaders of tomorrow through quality education of the students and scholarship of faculty.

Develop a healthy working environment

Providing a working environment and structure that adequately satisfies human needs, keeps up the morale of the people working within the institution so that they work better, teach better, learn better and are creative. An environment that encourages new ideas begins with senior administrators and permeates the institution for interpretation by faculty and staff.

Necessary knowledge and skills

In order to carry out the responsibilities effectively and efficiently administrators need to equip themselves with relevant knowledge and skills. Management is getting things done through people. Academic administrators need to have a knowledge of theory of behaviour of organisations and people. In order to turn vision into reality, they need to know about planning, strategy and governance. They must know about principles and techniques of management and operations so that they can build smoothly functioning and efficient systems. For better decision-making they need to have

a knowledge of evaluation and analysis. In order to relate the institution to the environment they must know the process, tools and techniques of environment scanning and marketing of programmes. To develop resources they need to know about finance management and cash resource allocation. For effective communication they must know something about management of information systems as well as have excellent written and oral skills.

In their review of the leadership needs of the eighties Argyris et al (1980) have identified four skill groups for administrators of colleges and universities:

Peer skills	—	the ability to establish and maintain networks
Leadership skills	—	authority and power
Conflict resolution skills	—	mediation, handling, disturbance, working under pressure, negotiating
Information processing skills	—	collection, evaluation, organisation and dissemination of information.

To conclude, although the knowledge and skills necessary for administrators vary depending on the level and function; there are some responsibilities common to all administrators that dictate basic knowledge areas and skills in management and these have been discussed here. While no reader will learn to manage an institution by reading an article, it is hoped that the reader will glean some factual knowledge, some practical tips and some food for thought from it.

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The University of Allahabad

Prospects and Retrospects

Rajnath*

The University of Allahabad which once had pride of place among academic institutions in the country and was known as the Oxford of the East is now over a hundred years old. Taking stock of its past and present, one does feel that the University has declined but then other institutions have also gone down. We see the decline of the University of Allahabad against the backdrop of its marvellous past and tend to think that the University is in a deplorable condition but in fact the University still has enough plus points to have an edge on many other universities.

Even in its present shape the University draws a number of bright and ambitious students who qualify for the most competitive of jobs in the country. There are both senior and junior teachers genuinely committed to their profession many of whom have received prestigious awards and fellowships, invitation to national and international seminars, appointment as national lecturers, etc. The University has a Centre of Advanced Studies in Psychology and eight departments of special assistance (Commerce and Business Administration, Mathematics/Statistics, Botany, Physics, Chemistry, Ancient History, Hindi, and Philosophy). So when we say that the University of Allahabad has declined, what we intend is that the University today is not as good as it was in the past.

The decline of the University of Allahabad can be attributed to various factors. Some will say that the decline is the inevitable outcome of the general decline of the country since Independence, others that the decline is due to the Campus politics, and yet others that the incompetent Vice-Chancellors are responsible for it. I will say that the downfall of the University of Allahabad reflects the overall degeneration of academic institutions in the country and we must pause to think why this has happened. What constitutes the bedrock of a university's reputation? If the University of Allahabad was praised sky-high at one stage, was it because of its buildings, its students, its Vice-Chancellors, or its teachers? When we talk of the past of the University, what do we talk of? We talk of the great teachers, the stalwarts in their respective disciplines such as Professor M.N. Saha in Physics, Professor N.R. Dhar in Chemistry, Professor S.C. Deb in English, Professor R.P. Tripathy in History, and Professor R.D. Ranade in Philosophy. It was these teachers who laid the founda-

tion on which the beautiful edifice of the University of Allahabad was built. It was they who made this University the Oxford of the East. And it was these teachers reputed for the quality of their research and teaching who attracted to this Campus the best talents from all over the country.

Teachers are the cornerstone of a university. In the West, especially in the U.S.A., when a distinguished teacher retires or moves to another university, the university looks for someone of equal stature so that the reputation of the university does not go down. Do we ever think along these lines? I am not suggesting that the University should always induct scholars from outside but it must create proper academic ambience on the campus so that the young teachers with potential shape into fine academics instead of getting dragged into the campus politics which in time they enjoy more than academic pursuit. The restoration of the past glory of the University of Allahabad will remain a chimera unless we have distinguished academics on the campus.

A serious problem plaguing the Indian universities is that the best students do not want to stay in the teaching profession. This is a rather social problem, as the teaching profession is not considered as respectable as some other professions. At any rate, if we want the best talents to opt for it, we shall have to make it more attractive. Professor R.C. Mehrotra, as the Convener of the Pay Commission set up to revise the pay scales of University and College teachers had recommended that some really outstanding teachers should be given a higher salary than even the Vice-Chancellor. Judging from the Press reports, this was not acceptable to some members of the teaching community itself and therefore it never got implemented. Unless we devise a system whereby the social status of really outstanding teachers is suitably enhanced, bright young academics will not stay in the teaching profession resulting in further degeneration of academic institutions.

Yet another problem bedevilling the Indian universities is inbreeding. Today a university can grow only if it is open to distinguished outsiders. The American universities rarely appoint their own graduates. This recruitment policy may not work in India, but a system has to be evolved to ensure greater mobility of University teachers. There is nothing wrong with a graduate teaching in his own university but too much of inbreeding spawns campus politics which unfortunately is prov-

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ing to be a bane of the Indian universities. Many of those who moved from the University of Allahabad distinguished themselves in their disciplines. One can mention the present Vice-Chancellor, Professor R.C. Mehrotra, Professor U.N. Singh (Mathematics), Professors Nurul Hasan and Satish Chandra (History), and Professor G.C. Pandey (Ancient History). The movement of the faculty from and to a university will pave the way for academic ambience which we badly need.

Professor R.C. Mehrotra is a seasoned administrator and an eminent academic and he knows best how to put the University of Allahabad back on the rails. However, as a younger colleague of his, I should like to make the following suggestions :

University of Kerala, Thiruvananthapuram

(Contd. from page 1)

in the greatest organised lexicographical effort undertaken in any modern Indian language. Out of a comprehensive Malayalam lexicon planned in eleven volumes containing 15,000 pages, 2,50,000 entries and 20,00,000 citations and references six volumes have already come out. *The Journal of Indian History*, the foremost of historical studies and research in India, started originally in 1922 by Sir Shafat Ahmed Khan, has been regularly published by the University since 1946.

The University of Kerala is one of the earliest in the country to take steps in the direction of the democratisation of the University bodies and the first to provide for student participation in the Syndicate: the Senate, "the Supreme Authority of the University", has among its members 16 students and the Academic Council 10. There has been a student representative on the Syndicate since 1975. In addition, there is also a students' Council which functions as one of the Authorities of the University to advise the Syndicate, the Academic Council and the other bodies on matters affecting the welfare and the interest of students.

The University Union, founded in 1939, has tried to develop corporate spirit among the students of the institutions affiliated to the University, offering the student community rich and varied programme of co-curricular activities. Many important persons in Politics and Government have had their training-

1. The regularization of the academic session;
2. More funds for the physical facilities to the students and the teachers; and
3. The appointment of distinguished academics in senior position.

There are already indications that Professor Mehrotra will succeed in making the session regular, and given his credentials he should succeed on the other two counts as well.

If the University of Allahabad is restored to its past glory, it will become a model for the other universities in the country which, after having had a marvellous past, have fallen upon evil days as well as for those universities which have yet to gain a glorious position.

ground there. Similarly many illustrious sportsmen and sportswomen of the country have been the creation of the Department of Physical Education of the University.

Over the years, the University has made long strides in the field of Higher Education, always remaining instrumental in the rapid development of technical and technological education in the State, in the promotion of original research in various branches of knowledge and in the furtherance and conservation of Kerala Art and Culture.

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BOOKING THE BOOK IMPORTERS

Thomas Samuel *

Has the devaluation of the rupee been beneficial to any trader within India? Not many, but immensely to a few, like the importers of books, where discount or commission ranges between 50% for average books and upto 90% for remainders. If, for example, U.S., dollar has recently gone up from Rs. 18 to Rs. 26 the book importer has proportionately increased his additional margin by Rs. 4 to Rs. 7 per dollar through the normal trade discount; while his operating costs within India remain at par with other domestic traders. If this importer imports books worth half a million dollar or more, his margin in rupees grows proportionately within India. No other section of trade in India has been blessed with such a windfall as the importers of books in India have been.

When the Reserve Bank levied the condition of 200% deposits for importers in an effort to handle the country's balance of payment crisis, the importers of books were probably the least burdened because, after discounts they had to deposit only about 20% of the gross value for items like remainders, where the discount is upto 90%, or 100% of the gross value (rather than the required 200%) for average books where the discount is about 50%. But the book importers, traditionally used to importing without investing the needed capital raised a hue and cry and wanted the restoration of their earlier privileges of doing business without investment of necessary capital, which was not heeded to by the Government. If one had talked to foreign publishers it was their common complaint for years and decades that Indian book importers do not make payment on time, delay too much or at times do not even pay. All over the country, if orders for foreign books, of specific choice are placed to Indian booksellers, the percentage of actual supplies ranges between 5% to 15% only and in most cases additional handling charges are claimed. Despite lapses on these two vital conditions of service and trade the importers of books always seek more money as margin. Nothing would illustrate this better than their latest ploy.

A few days ago they managed through the Good Offices Committee, a non-statutory and loosely constituted body, by manoeuvring the deliberations, to charge a 9% mark up for books and 5% mark up for journals, over and above the official conversion rates. It is true that observance of these prices are not obligatory, some libraries will pay while others will not, but the students and public, needing foreign books and paying in cash, shall have to pay as per this mark up and shall thus get grossly exploited. Public-concern-litigation agencies should examine this issue and save students and the general public from this haul by a score of book importing magnates. If the total book import is to the tune of Rs.200 crores per year, an additional profit of

Rs. 18 crores will be cornered by this small group, through this illegitimate mark-up. This margin shall make bookselling many times more prosperous a business than even smuggling, which involves many risks. This kind of profit making, with the tacit approval of a non-statutory committee, like the Good Offices Committee dominated by booksellers should not be allowed. The Government, national press, intellectuals and others have to resist this kind of pillage by a few. The so called Good Offices Committee illegally mentions, in its documents, the names of certain universities and institutions as parties to the decisions of this Committee, but no memorandum of understanding exists between these universities etc., and the Committee. Nor are the Executive Councils of these universities involved or associated with the activities of the Good Offices Committee. The universities concerned should, therefore, take legal action against the exploitation of their names intentionally rendered on such documents to benefit the book-traders. In India, it is only a small portion of the imported books that is purchased by libraries. It is obviously the community of students and reading public which buys large chunks of these books. A Committee not having any representation of students, the general public and authors etc., should have no right to decide in favour of higher prices for the benefit of book-trade. Justice demands that a C.B.I. inquiry be conducted on the working of this non-statutory body through which the prices get hiked at the national level to benefit a particular section at the cost of the masses.

Concerning the Indian books, this Committee allows only 10% discount to libraries, while the book-trade does supply to many libraries including the Parliament Library, New Delhi and Aligarh Muslim University, etc., at 20% discount. Why should such a lower rate of discount be ever approved by the Committee? Was it ignorance, or were there other factors for it? It is a recorded fact that when a Vice-Chancellor wanted to establish a book shop in his University in order to protect the university community from escalated prices, some representatives of the book-trade threatened him with dire consequences. But the Vice-Chancellor on that occasion was able to curb the overtures of the so-called Good Offices Committee, which has once again raised its head for providing undue benefit to the book-trade at the cost of libraries, students and the general public. All book lovers should examine this issue and see that the reading public is not exploited.

This phenomenon of further rise in the prices of books and journals, to help the book-trade, will strangle the institution of libraries which is already on its last legs, due to continuous yearly hike-up in prices and the severe blow dealt by the recent 22% devaluation. The 9% mark-up may now prove to be the last straw on the libraries' back. If the library, being the heart and soul of higher learning dies, what shall be left of higher education and research in our country?

**Lecturer, Kirori Mal College, University of Delhi,
Delhi-110007.*

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ESSAY CONTEST HONORING THE BICENTENNIAL OF THE AMERICAN BILL OF RIGHTS

In commemoration of the bicentennial of the American Bill of Rights, the American Studies Research Centre in Hyderabad and the United States Educational Foundation in Delhi announce an essay contest.

ELIGIBILITY

The contest is open to registered Ph.D. candidates and/or lecturers from Indian institutions and/or ASRC members who are engaged in research.

Entrants must not be more than 40 years of age as of 15 November 1991.

Essays must be written in English.

CONTEST

The maximum length of the essay is 2,500 words.

The theme of the essay should be any aspect of the theory and/or practice of the American Bill of Rights. Essays may either focus exclusively on the American context or be set in a comparative framework incorporating relevant reflections on an Indian context as well.

ENTRY PROCEDURE

Entries should be addressed to the Director, ASRC, Hyderabad 500 007 or the Director, USEFI, "Fulbright House," 12, Hailey Road, New Delhi 110 001 and should be received at one of these offices not later than 15 November 1991.

Each entry should have the following information supplied on an attached cover sheet:

- (a) Name
- (b) Institutional affiliation and title of position
- (c) Residence address
- (d) Institutional address
- (e) A signed statement pledging that the essay is his/her own work, written specifically for the competition.

Each entry must be accompanied by a certificate of institutional affiliation which also attests to the entrant's age. Each entrant may submit only one essay. Entrants are urged to keep a photo copy of their essay.

Entries must be typed (double-spaced) on A-4 paper, one side only with 1" margins. No binder or other cover should be used. Ideas or quotations from material read or people consulted must be given credit. Complete citations must be included at the end of each essay.

Entries become the property of USEFI/ASRC which will have the option to publish selected essays in appropriate journals.

JUDGING

Entries will be judged by members of the ASRC/USEFI staffs and co-opted senior scholars in relevant fields.

Essays will be judged on the following criteria:

1. Depth of understanding and quality of analysis.

An evaluation of the depth of knowledge and insight into the topic and the writer's analysis of its concepts.

2. Accuracy and Relevance of Content.

The ability to locate and cite useful and accurate resources relevant to the topic.

3. Clarity of Ideas.

The ability to express ideas and to organize points in a clear, concise and original manner. Use of language, structure and format will be considered.

4. Originality of Presentation.

The ability of the writer to treat the topic in a creative or unusual manner will be considered. The quality of thinking expressed in approaching the material will be judged.

AWARDS

There will be three prizes:

First Prize: Rs 2,500 plus a book on the American Constitution autographed by the former Chief Justice of the United States, Warren Berger

Second Prize: Rs 1,000 plus a book on the American Constitution autographed by the former Chief Justice of the United States.

Third Prize: Rs 500 plus a book on the American Constitution autographed by the former Chief Justice of the United States.

Prizes will be awarded at an appropriate ceremony in Hyderabad or New Delhi. Winners will be special guests of ASRC/USEFI at the awards ceremony.

Decisions of the judges will be final.

This is Indian-ness

Prof. Yash Pal, former Chairman, University Grants Commission, delivered the Convocation Address at the eleventh annual convocation of the Kakatiya University, Warangal. In an inspiring address Prof. Yash Pal exhorted his audience to be proud of being Indian. He said, "There are not many other countries in the world where you can walk down a street and go past several types of temples, a mosque, a church and a gurudwara, each with its special architecture and ambience. Even to non-believers, and certainly to those of various faiths, these are markers of the story of man striving towards human-hood. So let us realise that we are alright. All this variety is not a problem but a part of being what we are. Without this we won't be. This is Indian-ness". Excerpts

An event has taken place in this country (in the last quarter of 1990) involving a very large number of people, an exercise whose size and magnitude cannot be surpassed by any other country in the world. The largest number of people in history went through an election to decide how they would be governed. I am very proud that this happens in our country. Indeed this is the best indicator of the maturity of our people and the greatest assurance that our ultimate future will be meaningful and bright. Whenever we get cynical about our institutions, about the quality of our education, when people say that our teachers do not teach, students do not learn, there is lot of corruption, horrible inequalities, everything is wrong, I think we should look back to the kind of exercise we have just gone through and stop a little bit of self-flagellation. Maybe we are not as terrible as we think we are. I know that our teachers do teach, at least a large fraction to them; the students

do learn, a large section of them; I do know that this country runs better than many, perhaps not as well as it ought to. I am very happy when I look at the totality of what this country stands for, its concern to mix development with values, in addition to what has been achieved in economic terms, slowly but surely over the last forty odd years.

I do not think we should attempt to make an India which will be a copy either of United States or of Soviet Union or, for that matter, of any of the other countries of the West. We do not have to subscribe to any of the certified ideologies, which in any case are being mixed up a bit, but develop one which will truly be our own. In saying this I am not speaking as a politician or a political scientist, which I am not. I am talking about the inner strength of our people and I am urging that occasionally, particularly after this exercise — even though a noisy exercise, a boisterous exercise — we should agree to suspend our

cynicism. In any case cynicism never leads us anywhere.

In this connection I want to make a larger point for your consideration. During the event of last few weeks, as on many other occasions, we have found that the interaction between our people is rather intense, sometimes even confrontational. I don't think it is a totally negative feature. There are some good elements to this. No society is alive and no society will create anything new and living unless its members interact with each other strongly, collide with each other, occasionally to evolve new configurations, new ideas and new possibilities. This is also a sign of vibrance. There are not many societies in this world, even the most advanced countries of the world, where people are asking some basic questions of how man ought to live and what should be his central values? In most places they only worry about plans and strategies for economic development, industrial growth, how to beat the Japanese, how to thwart the Germans to enhance one's own markets. The other questions, related to personal and social ethics of society, are in the background or of secondary importance. But that is not so in our country.

One *can* perhaps argue whether this is good or bad for a society to continue discussing the value and viability of its personal and social goals. But I am rather glad that unlike some other societies we are not yet riding a tiger where getting off would be extremely hazardous. I am rather proud that even at the in-

dividual level we still keep on asking: "What should be the goal of my life, what shall I do? Who should I relate to? How should I realise my destiny, personal, political, social and spiritual?". Now, I think it's rather nice that we are not being swept down an inevitable stream, but it necessarily leads to collisions, friction and viscosity. In physical terms, the movement of a liquid along a channel is slowed down because its atoms and molecules keep on colliding with each other and with the edges of the stream. That is what causes friction and viscosity. You don't move as fast as you could otherwise do but in the process of your movement there is exchange and interaction, there are vortices and creative differentials. Some degree of friction and viscosity in a society is absolutely necessary otherwise each of our element will just preserve what it has without borrowing or giving, or creating new systems. We are not inert balls running down a slope. We are breathing, thinking and strongly interacting people; we are truly living. It is true, of course, that on many occasions our collisions are so many and the viscosity so high that our forward movement is almost stopped. That, of course, must be avoided or else cynicism sets in and voices are raised that we should tilt in a direction of greater uniformity and towards a rather colourless "mainstream". It is essential, therefore, to moderate the rate of our collisions so as to keep a net "streaming velocity".

Having said all this let me confess that we do have, in our transactions with each other, and the collision we must necessarily have, a degree of intolerance of the unlike and different which is rather destructive. We sometimes feel that our group is superior to every other and at others, that we are sinned against

and are kept at the bottom. Sometimes we think that there is nobody like us in the whole world. They are all materialistic. We only are spiritual. We are peaceful people, they are warmongers. My religion is the best, my faith supreme, everybody else's is secondary. We came earlier, we are true inheritors of this land, they came later. My revelation is true and its brand name nicer and his, Ah! I won't look at it. Clearly this is a problem of perspectives, of seeing and relating. I would like to explain this through an analogy.

About a year ago, an old friend of mine — a very cultured lady, an artist and a humanist — came to spend the day with us. After a while she asked if we had a round muddy-pot in the house. You know, the kind in which you store drinking water. She wanted a perfectly round pot, so we got one. She put it upside down on its neck and started working, using templets, markers and colours and after a few hours produced a rather beautiful looking globe, a beautiful, but somewhat unusual globe on which all the Continents and the Oceans were rightly depicted but, as she put it, my house in Delhi was on top! You realise that the globe could have been equally well painted with Warangal on top or Bombay, Calcutta, Trivandrum, or New York on top. Each of these globes would be equally valid. I have a right to draw my globe in such a way that I am on top, but I have to simultaneously recognise the right of every one else to do the same, keeping his place on top. There are spaces, even in the realm of ideas, cultures or ancestry, where, like at the surface of the sphere, no point is really more on top than any other; it is just that "up" lies in different directions at different points and each of these is equally correct. I am not saying that we should not be

proud of our way of living, the clothes we wear, the food we eat, the language we speak, or the belief structure we have. A human can function only when he believes he's alright. But our happiness with who we are becomes chauvinistic as soon as we deny a similar right of another to feel the same happiness with his state. Instead, there is real joy in learning to see his "top" from *his* perspective. We don't often grant the others their right and it is seldom that we walk over and enjoy what lies at *his* zenith.

We need to develop a consciousness where the variety and richness of our cultural tapestry should be a special source of delight. There are so many ways in which we can draw our globe in the cultural space. Momentarily we might consider any of its aspects to be the most glorious, merely because we are looking at it at that time. At the next moment a different view might engage our attention, and then *that* is on top.

We should stop being impressed, and sometimes threatened, because some wisdom or belief system is named differently. Differences in names are inevitable, but do not necessarily imply a major difference in content. We have been too much affected by the advertising world where the brand names seem to matter a great deal. The analogy I have given earlier, also makes it clear that the slogan of "catching up" with the West, or whosoever, is misconceived. There is no catching up or getting higher on a globe. We have to create our own kind of society, our own future. So while we go away from false pride, AHAM-KAAR, of being very special, we should also avoid succumbing to a feeling of being behind, being inferior. There is enough room around us, and everyone else, to in-

novate in our neighbourhood, enough scope for achievement, if we use our own measures, both qualitative and quantitative.

I would like to commend to you a way of thinking in which many things we consider as problems may begin to be appreciated as assets. Instead of trying to achieve a grey uniformity capable of easy description, we should be grateful that in our country we can experience, feel and touch such a large variety of cultures, religions, languages, sounds, and styles of living. There are not many other countries in the world where you can walk down a street and go past several types of temples, a mosque, a church and a gurudwara, each with its special architecture and ambience. Even to non-believers, and certainly to those of various faiths, these are markers of the story of man striving towards human-hood. So let us realise that we are alright. All this variety is not a problem but a part of being what we are. Without this we won't be. This is Indian-ness.

This way of thinking does not imply going back into a cocoon of our "ancient wisdom". We should, instead, carry the spectrum of that wisdom with us as we vigorously entangle with the sociological, political, scientific, technological and industrial dimensions of living and prospering in this world. The moulds and modes we evolve should be our own and no one has a right to say that they should conform, or not conform, to what happens in another part of the world with a different history and different cultural and economic mix.

Within India we have to stop talking about the "mainstream" and the "periphery". It is all a matter of definition. If you insist, then the

mainstream — the top, the highest point — is where *you* are located. But that is also true for everyone else — it is where *he* is located.

Basically, I feel it is marvellous to

be an Indian, to have all this richness around, so many challenges, and such great possibilities for fulfilment. I hope you feel the same. If not, just think about it and you will.

COMMUNICATION

Science + Gandhi

Prof. S. Bhaskaran's pointed note "Reflections on the Role of the University" (*University News*, Vol. XXIX, No.33 of 19th August, 91) and Prof. Ashok Mitra's convincing convocation address (in the same number) must not be treated as coincidental views appearing simultaneously but as expressions of a genuine concern about the lopsided intellectual development of the youth of today. Great minds have deplored the tendency earlier also. C.P. Snow, for instance, in his famous essay "Two Cultures" is perturbed about the growing "Polarization" among scientists and writers/artists into two *Achalayatan*, that is, hermetically sealed compartments that are blissfully, indifferent to the need of a reciprocal traffic of ideas, views and information. Added to the calamity is the unrelenting onslaught of mass culture rightly characterised by mediocrity loudness and coarseness of taste.

This may be mainly due to the triumph of the advertisement that science and technology are the panacea for all human ills, and also to the undue popularity of commerce courses that suffer in general from a thinness of content and multidimensionality. But, then, the arts

courses also have failed to deliver the goods for the same reasons but also mainly because of an offensively bloated egotism and moral superiority that liberal education alone will save the world.

The Kothari Commission has recommended the wonderful formula of S + G, that is, Science + Gandhi. In practical sense it presumably advocates an interdisciplinary approach that the open universities adopt, and the UGC recommends under "restructured" curricula. Since man-making is the objective of education, one finds it difficult to allow any option to the interdisciplinary approach. However, this is possible only if our academies and academics feel favourably inclined to accept educational *glasnost* and *perestroika*, and also add an extra little hour to the holy figure of four hours of daily workload!

Dr. Shirish Chindhade,
Principal,
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3. आधुनिक भारत का इतिहास	सं. आर. एल. शुक्ल	50.00
4. भारत का स्वतंत्रता संघर्ष	सं. बिपिन चन्द्र	50.00
5. ब्रिटेन का इतिहास	सं. पार्थसारथी गुप्ता	26.00
6. यूरोप का इतिहास	सं. पार्थसारथी गुप्ता	60.00
7. आधुनिक पश्चिम का उदय	सं. पार्थसारथी गुप्ता	40.00
8. प्राचीन भारत में दास प्रथा	देवराज धानना	25.00
9. हिन्दुस्तान के निवासियों का जीवन व उनकी परिस्थितियाँ	के. एम. अशरफ	25.00
10. पृथ्वी से पुरातत्व	सर मार्टीनर फीलर	40.00
11. प्रागितिहास	मजुमदार व गोपाल शरण	40.00
12. यूरोप 1870 से	जेम्स जॉल	60.00
13. बंगाल का आर्थिक इतिहास, भाग-2	एन. के. सिन्हा	40.00
राजनीति विज्ञान		
1. राजनीति सिद्धांत	सं. ज्ञान सिंह संधु	—
2. भारतीय शासन और राजनीति	सं. सुरीला कैशिक	50.00
3. तुलनात्मक शासन और राजनीति	सं. आर. बी. जैन	—
4. भारत में उपनिवेशवाद और राष्ट्रवाद	सं. सत्या एम. राय	60.00
5. गुट निरपेक्षता आंदोलन एवं संभावनाएँ	एम. एस. राजन	50.00
6. राजनीतिक चिंतन के आधार	माइकल फोस्टर	20.00
7. यूनानी राजनीति सिद्धांत	सर अर्नेस्ट बार्कर	40.00
8. ब्रिटिश संविधान	सर आइवर जेनिंग्स	16.00
9. भारत में विधि-व्यवस्था	नरेन्द्र लाल मदान	10.00
10. भारतीय समाज, अधिकारी तंत्र और प्रशासन	आर. बी. जैन	15.00
11. संविधानवाद	ओम प्रकाश गाबा	6.00
12. केंद्र राज्य संबंध	शर्मा, यादव	20.00
13. भारत का विकास मार्ग	ए. आर. देसाई	30.00
साहित्य		
1. काव्यानुवाद सिद्धांत और समस्याएँ	नगीन चंद सहगल	30.00
2. साहित्य का समाजशास्त्रीय चिंतन	सं. निर्मला जैन	—
3. पालि भाषा और साहित्य	इन्द्र चंद्र शास्त्री	70.00
4. भारतीय साहित्य का समेकित इतिहास	सं. डॉ. नगेन्द्र	80.00
5. भारतीय काव्य सिद्धांत	सं. डॉ. नगेन्द्र	30.00
6. वैयाकरण सिद्धांत कौमुदी	शिवनारायण शास्त्री	100.00
मनोविज्ञान एवं दर्शन		
1. विकास मनोविज्ञान भाग-1	हार्लोक	40.00
2. विकास मनोविज्ञान भाग-2	हार्लोक	30.00
3. समकालीन विश्लेषणात्मक धर्मदर्शन	वी पी वर्मा	25.00
4. दर्शन विवेचना	वी पी वर्मा	50.00
5. धर्म दर्शन की मूल समस्याएँ	वी पी वर्मा	60.00

प्रप्ति स्थान हिंदी माध्यम कार्यान्वय निदेशालय, दिल्ली विश्वविद्यालय
बैरक नं. 2, डॉ. नरेंद्र मार्ग, पत्राचार विद्यालय के सामने, दिल्ली-110007 दूरभाष 7110166

Higher Learning and the University Library

"If certain universities have progressed fast and well in cultivating learning in developed countries then their libraries were the blueprints, e.g. at Harvard, Oxford, Bonn and elsewhere. But in India higher education in universities and colleges started from 1800 A.D. onwards in the absence of libraries and extensive use of books and acquisition of knowledge. This appears to be the most important factor responsible for the stagnancy and failure of our higher education and learning". This premise forms the cornerstone of a wide ranging seminal study on the "Role of University Libraries in Higher Learning" conducted under the aegis of the Indian Institute of Advanced Study, Shimla by Prof A P Srivastava, University Librarian, University of Delhi. Prof Srivastava feels, that as the university is one of the chief vehicles for taking a country towards progress and modern civilisation, its failure to sharpen minds is the greatest handicap that we are facing today. In the present examination dominated system of education, a student is a passive listener to an uninteresting lecture by a disinterested teacher. With the teachers lacking information on research findings of learning theorists and scientists and the administration encircled by traditional rules and procedures, least number of books are studied and the whole emphasis is on a few topics on which questions are likely to be set in examinations. Independent academic work by students is unheard of. There is no real communication between teacher and student, teacher and teacher, and the student and student. To overcome this depressing scenario Prof

Srivastava has come out with far reaching recommendations to overhaul the teaching learning process in our centres of higher learning where pride of place is to be assigned to the libraries.

The study has attempted conceptual innovations in teaching learning processes where books, libraries and librarians may find their appropriate roles and placements. Empirical approach has been avoided because it is felt that it does not necessarily lead to conceptual innovations. The scope of the study is the area laminated between teaching learning processes as one layer and the use of knowledge and information contained in books etc., and organised on modern lines in our library and information system as the other layer. The span of time covered in the study is from 1800 A.D. to 1900 A.D. Prof. Srivastava has observed that the role and place of libraries and librarians in the educational system are proportionate to the quantum and quality of learning required in it. If higher education is a process having scanty learning, the libraries and librarians will merely be useless appendices. However, in the universities and colleges where learning is of high order, the libraries and librarians automatically obtain higher roles and proportionate placing in the scale of values.

The various topics discussed in the study include characteristics of Indian scholarship and teaching learning process; biotech and information society in India; status of learning and university libraries before independence and upto

1990; collection building since 1950; from departmental libraries to national networks; librarian and user interaction; and essential academic reforms.

The following conclusions and recommendations have emerged from the study:

1. Adopt credit system with short courses and need for independent work by students.

To get over the examination dominated system of education Prof Srivastava strongly advocates the introduction of credit system with numerous short courses, teachers' synopsis on each course (to be given to students in first meeting) and frequent examinations by teachers teaching various courses. A strong plea is made for the autonomy of the teacher with checks and balances within a department and the college or university functioning as the final authority. Evaluation by students is another factor that promotes autonomy of the teacher. These measures will require constant learning activities on the part of teachers and students where independent studies are conducted by students using books etc. as tools of learning and not merely the selected topics approach for examination which has been prevalent since 1800 A.D. The teachers are expected to be aware of the major research findings on learning theories and mind style in learning. The mismatch between the teaching style of the faculty and mind style of the students blocks the progress of a student and defeats the learner in him. The credit system and the preparation and circulation of the synopsis by the teachers will meet the requirements of learning to a great extent.

2. Introduce synergy courses for learning skills at entrance level.

There is a constant decline in learning skills of students. The situation can be remedied by introduction of courses on general synergy and learning skills with emphasis on them during the first year and their continuation in bits during the second and third years. These courses aim at developing communication skills, reading and writing skills, research and investigation skills, and skills for acquiring and using information. The development of these abilities for self-direction in our students and the faculty will result in greater use of books and other learning resources making the library a real workshop.

3. Launch national acquisition agencies abroad.

Collection building is a highly specialised and professional task which has become all the more important because the knowledge is almost doubling itself every five years. It is too important a function to be left to the book trade because their prime driving force is the profit motive. Many of the seminal works in various fields do not find automatic entry on the Indian soil. It is only books that have high percentage of discount that are favourite with the booksellers. We must monitor the growth of knowledge on the points of generation and production of new knowledge. These points for the English language are at New York and London. We should launch a cooperative acquisition programme on the lines of the Library of Congress Unit at New Delhi by establishing a unit each at London and New York. These units should be controlled by a consortium of university librarians under the jurisdiction of the UGC, Ministry of Human Resource Development and the Association of Indian Universities. Apart from ensuring quality book collection, this consortium will be able to keep

at bay the parasites that normally thrive on library finances. These units will pay their own way by getting commercial trade discount that the commercially registered agency will get at New York and London.

4. Realise the real roles of modern professional librarians and information scientists.

Our administrators and academicians have by and large not recognised the exact roles of librarians in learning, knowledge organisation, dissemination and production etc. A present day librarian having the same level of academic qualifications as the members of the teaching faculty possess plus the professional education is fully equipped to facilitate learning. But he will be able to render quality service only when he occupies the same position in the scale of values of universities and colleges as is held by his counterparts in western countries. He must get his due position, role, authority and stature that automatically go with his responsibilities. There are international norms and standards for libraries and librarians as also for learning and scholarship. These norms must be honoured and implemented as a package programme. The most vital role of the librarians is to bring books etc, and the people together for the latter's growth and sharpening their intellectual curiosity. This role deserves the driver's seat in the processes of learning, organisation and dissemination.

5. Library and information people should invariably provide high quality services, as essential services.

Though there has been considerable improvement in the quality of library services since independence, modern elements of information service are still

conspicuous by their absence. Lack of realisation of the width and depth of academic and research services that the librarians can render, lack of finances, lack of proper motivation of professionals are some of the factors responsible for this state of affairs. The maximum demand on the university libraries is for textbooks. This has resulted in the emergence of separate textbooks sections. As these sections get the largest number of users, who do not come for serious study but to pick up a book or two, these sections could be organised on the pattern of the railway booking office where student's approach will be confined to outside not requiring entry into the library premises. Apart from the fact that this will do away with problems of vandalism like tearing the pages of the books etc., it will only be the serious clientele with reference and research needs that will enter the college and university libraries. It is under these conditions that quality reference service can be introduced and strengthened.

It will be worthwhile to consider declaring the university library services as essential services in the universities. This declaration will impart a seriousness of the purpose to the library staff and the library services will improve from their present position of a useless but conventional accessory.

6. Equip the Chief Librarian with relevant power for delivering goods. Have only one library authority in a university.

When learning, independent work, value of books etc., in the learning processes have emerged as academic and scholarly trends, the library as the organised world of knowledge is bound to obtain the most important place, that is, the heart of an academic and research institution. This is all well in practice, but in theory, the human agent

managing the world of knowledge — the librarian — remains pale in structure, anaemic in functioning and perhaps of the lowest rank in the scale of values, effectivity etc., in a university. It is suggested that the UGC should frame detailed guidelines as a set of recommendations on university libraries. These should incorporate provision of effective basis of managing library and knowledge utilisation; vesting the university librarian with executive powers for leadership roles and delegating to him all powers of library management. He will be the convenor of the Library Advisory Committee and ex-officio member of university's Academic Council, the senate and various faculty and research boards so that he keeps in constant touch with the needs of various academic requirements of the university as a whole. He may also be invited to the meetings of the syndicate and the Finance Committee as one of the assistants of the Vice Chancellor who looks after a vital area. He will have to take up newer leadership roles with the emergence of national, regional and subjectwise networks in the country. He will indeed be the channel of the university for resource sharing and network services in the country.

7. Develop the trend of local commonwealth of libraries and information systems through consortiums. Scrap the backward practice of departmental libraries.

All factors — economy, efficiency, utilisation — require that but for textbooks unit all other wings of the university library be considered the commonwealth of a nation's, region's and a local unit's information system clubbed with other libraries in the same locality. Modern technology of computerisation and communication have made it possible to develop commonwealth of libraries. This will call for a new organisational setup where the university librarian has dynamic roles to play outside the boundaries of the university library system. All

the major libraries in a city need necessarily be run through a consortium; the various consortia in a region should form a regional consortium, and similarly, the consortia of various regions should form a federation at the national level. This development will of necessity require scrapping the ancient concept of departmental libraries. All the libraries in a university will have to become a system — well knit, unified and under one authority — before a university library could think of collaborating with other libraries in a network.

8. Create learning environment in universities and colleges.

With so much emphasis on examinations, there is no scope for real learning atmosphere and creativity in our universities because preparing a dozen topics does not require the world of books to be the tool of learning. It is not creativity because we mostly study words and not ideas. Elements of dedicated intention and disinterested motivation for learning scarcely exist on our campuses. To make our faculty to go in for deep and disciplined scholarly probings, in addition to the adoption of relevant academic designs, we have to encourage them through awards of annual/regular honours. We must develop book clubs and give and take sessions for our teachers. Sincere self evaluation and subtle role by peers is very important in this direction. Faculty development is the most seminal issue which should be properly conceived and implemented through national coordination, international cooperation and intellectual cooperation. Our Academic Staff Colleges have special role to play in this regard.

9. Make book writing an important role of teachers.

Our faculty has always found it convenient to use foreign books and that has contributed to the growth of inertia in our intellectuals. We have been largely satisfied through the

British Council, USIS and Soviet Union's distribution programmes in our country. It must however be understood that scholarship and learning can never grow in any country in the absence of a large scale books writing programme for various levels and kinds by the academicians and teachers of the country. We have one of the biggest sizes of academic and professional population and some suitable measures are called for to promote original writing, translations, adaptations etc. The way a small country like Hungary has prompted its academics to produce uptodate books is an example worthy of emulation.

10. Vice Chancellors should attach greater importance to library and learning aspects.

Every vice chancellor should adopt the motto "give me a library and I will develop a university around it". The university librarian must find a place in the VC's cabinet/active team. Our vice chancellors are most of the time doing fire fighting and routine work. Maximum noise emanates from teachers and students. This is so for they are not involved in real learning games. If the vice chancellors devote some time to broad learning situations and duly innovate teaching, learning and library sectors, both the teachers and students will get properly occupied and will have no time to generate noise. This will save the vice chancellor of much of the fire fighting and allow him time to think about the further growth of learning in our universities. In creating proper learning situations, books and libraries have great roles to play. This calls for according due importance to the library staff which include by now many capable, though young, hands having subject speciality in natural sciences, social sciences and humanities equipped with degrees in library and information science. This unique manpower should not be neglected. It should rather be used and exploited in utilising knowledge.

Japanese Centre for Visva Bharati

A Japanese Centre is proposed to be established at the Visva Bharati.

More than 100 Japanese educationists and academics, having close links with Visva Bharati, had formed the establishment committee of Nippon Bhavan of Visva Bharati in Japan in 1989 and raised Rs 2 million in funds for construction of the bhavan to foster cultural affinity between the two countries.

Chaired by the celebrated Japanese Sanskrit scholar Isusho Byodo who worked with Tagore at Santiniketan during the early thirties, the committee has sent a delegation led by Prof Kazuo Azuma to hand over a cheque of Rs 2 million to the Visva Bharati authorities.

Prof Azuma said the committee and the university authorities had signed protocol for establishing the Nippon Bhavan at Santiniketan with a ten-point objective including cultural exchange programmes between the two countries for better understanding.

The Nippon Bhavan is expected to be completed by 1992-end. It would take up a joint programme to understand the philosophy of universalism and internationalism of Tagore in its wider perspective besides indentifying the linkage between the thought currents of India and Japan in the areas of music, fine arts and performing arts, he said.

The Bhavan would also undertake programmes for the revival of close links between Japan and India in the area of painting and sculpture, poetry and literature, both traditional and modern.

The Bhavan, which is to be an amalgamation of Indian and Japanese architecture, would offer

diploma and certificate courses in Japanese, currently being done at China Bhavan, and gradually introduce courses in Japanese language, literature, thought and social studies, Prof Azuma said.

The proposed bhavan will be constructed on a piece of land donated by the Visva Bharati, and would have a library, reading room and audio-visual facilities.

Device to Control Vehicular Pollution

Dr. S.K. Sharma, Associate Professor and Head of the University Science Instrumentation Centre (USIC) at the Jawaharlal Nehru University has developed a device to control Vehicular Pollution and noise level. The device developed by him can remove almost all pollutants from auto exhaust emissions. An extensive study, tests and analysis on the use of prototype of this device have revealed that this device is successful in eliminating Co, SO₂ NO_x, hydrocarbons and particulate matters from exhaust emissions upto a level which is much below permissible limits. Besides removing the pollutants like hydrocarbons upto 100%, NO_x, SO₂ & CO by 80-85%, this device also acts as a second muflar thereby reducing the noise level of automobiles. The present device can also replace the existing silencers if modified to some extent thereby bringing the cost of its installation down further.

The device can be easily fitted with the silencer (muflar) in all types of vehicles, if modified according to their size, rate of emission etc. The new device is very easy to maintain and involves a nominal expenditure on routine servicing/cleaning etc.

According to Dr. Sharma atmos-

pheric pollution is caused by various automobile vehicles like two-wheelers, cars, buses, trucks etc. Tonnes of chemical compounds like Carbon mono-oxide, Sulphur dioxide, nitrons oxide, Hydrocarbons and other particulate matter are being injected daily into the atmosphere by lakhs of vehicles plying on our roads. The problem has become a menace in cities like Delhi, Bombay, Calcutta, Kanpur, Madras etc. The efforts like testing of the level of tuning of carburetter for the minimum CO & hydrocarbon emissions are merely an eye wash. It is so because this test is done at idling speed when the fuel to air ratio is minimum. Therefore, the pollutant level is much lower than that at cruising speed. Thus, the present method of pollution testing is not at all effective for pollution control except that the vehicle owners are burdened with mandatory checks and repeated tests.

Dr. Sharma has claimed that apart from making our environment cleaner, the new device has vast potentials for generating employment to thousands of people all over the country who will manufacture, sell, service and repair the device when used by all automobile owners.

Dr. Radhakrishnan Samman

The Madhya Pradesh Uchcha Shiksha Anudan Ayog (Higher Education Grants Commission), Bhopal has started an **anupam anushthan** of awarding Dr. Radhakrishnan Samman to the college and university teachers of Madhya Pradesh. The award is given on the basis of research papers published in the national or international journals from January 1, to December 31 every year. The award is presented to the best published paper - one each in the faculty of arts, science and commerce. The evaluation is done by a noted panel of scholars

and the award presented on September 5, the 'Teachers Day' every year.

This year, the award was presented on the basis of research papers published from January 1, 1990 to December 31, 1990. In all 112 research papers including 47 in arts, 60 in science and 5 in commerce were received for the competition.

Selected for this prestigious award under the faculty of science were Dr. Prem Chand, Professor of Mathematics, Vikram University, Ujjain; and Dr. Sanjay Kumar Upadhyay, Asstt. Professor of Chemistry, S.S.L. Jain Postgraduate College, Vidisha. Under the faculty of arts Dr. (Smt.) Srirama Indradeo, Professor of Sociology, Ravishankar University, Raipur and Dr. Bhagwati Lal Rajpurohit, Professor of Hindi, Sandipani Postgraduate College, Ujjain were selected.

These teachers were presented with a memento, commendation letter, shawl and a cash amount of rupees five thousand each at the Alankar Samaroh organised in Ravindra Bhawan, Bhopal on Teacher's Day. Hon'ble Kunwar Mahmood Ali Khan, the Governor of Madhya Pradesh was the Chief Guest. Dr. Murli Manohar Joshi, the President of Bhartiya Janta Party was a special guest of honour. Shri Sundarlal Patwa, the Chief Minister of Madhya Pradesh presided over the function. Shri Vikram Varma, Minister for Higher Education, Madhya Pradesh was also present.

The Chief Minister in his presidential address appreciated the initiative taken by the M.P. Uchcha Shiksha Anudan Ayog. He, however, felt that the cash amount given to the participants was less and therefore, announced that the

cash prize would be raised to rupees fifty-one thousand. This announcement of the Chief Minister was highly applauded by the audience.

The Governor Shri Mahmood Ali Khan applauded Dr. Radhakrishnan Award project and predicted that it would soon be followed by UGC and other States. Dr. Murli Manohar Joshi congratulated the award winning professors. He also congratulated the Ayog for initiating the movement of encouraging research activities in India.

Programme in Structural Geology

The Department of Geology (PG), Mohanlal Sukhadia University, Udaipur, proposes to organise an Advance Field Training Programme in Structural Geology for the University/College Teachers under special quality programme (COSIST) of the UGC, from 23rd December 1991 to 5th January 1992. The programme is intended for faculty upgradation of the teachers (preferably below the age of 35 years) actively engaged in teaching and research in structural geology. The resource person for the above training programme will be the local experts and invited persons of eminence in similar fields.

Further details may be obtained from Prof. A.B. Roy, Director, Advanced Field Training Programme in Structural Geology, Department of Geology, Mohanlal Sukhadia University, 51 Saraswati Marg, Udaipur 313001.

Orientation Course for Teachers

The Academic Staff College of Gorakhpur University recently organised its VIII Orientation Course for the benefit of the newly appointed teachers of universities and

colleges. The course was inaugurated by Prof. U.P. Singh, Pro-Vice-Chancellor, Gorakhpur University.

Twenty two participants from Gorakhpur, Awadh, Purvanchal and Bihar Universities and their affiliated colleges belonging to different disciplines viz. Sociology, Economics, Pol. Science, History English, Physics and Chemistry attended the Course.

In his inaugural address, Dr. Singh observed that learning was a life-long process and that the human mind had infinite capacity for acquiring knowledge. He stressed the need for orientation programmes and exhorted the participants to refresh their knowledge and improve their teaching skill.

Indian Tradition : Its meaning & relevance

The Academic Staff College of the Gorakhpur University recently organised an Orientation Course for newly appointed College and University teachers. Professor S.P. Nagendra, Director, G.B. Pant Institute of Social Sciences, Allahabad was the chief guest at the inaugural session. On this occasion Prof. Nagendra delivered a lecture on 'Indian Tradition : its meaning and relevance' on 18 Sept. 1991. He observed that the word 'tradition' was derived from a Greek word 'trado' which meant handing over. Culture is transmitted from one generation to another. This transmission of civilisation and culture may be direct or indirect. Indirect transmission is not authentic. Tradition means that there should be no stoppage or break anywhere between the flow of ideas, values and other things from one generation to another. Professor Nagendra further said that Sankaracharya regarded the *Sruti*, ancient Indian scriptures as the most authentic source of knowledge. Sankaracharya considered the *Sruti* his mother. Time presupposes eternity and history presupposes time. Language is a part of tradition. Institutions are metaphysical principles which are applied to historical circumstances. They are eternal. To conclude

Professor Nagendra asserted that modernisation and tradition could not be combined.

XXXVII All India Library Conference

The XXXVII All India Library Conference will be held on December 4-7, 1991 at IIT, Madras. On this occasion a Seminar will be held on National Information Policies and programmes.

The Sub-themes and their facets are as follows :

1. *The National Information Policy*: (i) Conceptual Framework, (ii) Manpower Development, (iii) National Information Policy for India, (iv) On line Information System, and (v) Telecommunication Policy.

2. *National Information Programmes*: (i) Science and Technology, (ii) Social Sciences, (iii) Arts and Humanities, (iv) Small Scale Industrial Information, (v) Medical Sciences/Health Sciences, (vi) Defence Sciences, (vii) Standards and Patent Information, (viii) Agricultural Sciences, (ix) Environmental Sciences, (x) Nuclear Sciences, (xi) Bio-Technology, (xii) Space, Meteorology and Oceanography, and (xiii) Public Library System.

3. *National Information Networks : National Information Systems — INDONET, NICNET, SIRNET, INFLIBNET, SAILNET, CALIBNET AND DELNET, and Data Communication Facilities*

Further information with regard to participation and presentation of papers may be had from Dr. K S Raghavan, Organizing Secretary, XXXVII All India Library Conference, Professor and Head, Department of Library and Information Science, University of Madras, Madras-600 005

Randhawa Elected Vice President, WUS

Prof. Gurdip Singh Randhawa, Vice-Chancellor, Guru Nanak Dev University has been unanimously elected Vice-President of the International Executive Committee of World University Service (WUS) based at Geneva. Earlier, Prof. Randhawa was the President of the World University Service and Member of the International Executive Committee representing Asia.

WUS, founded in 1920, has a network of National Committees and contacts in 60 countries. It now has

its constituents in the form of National Committees in Africa, Asia, Latin America, Europe and Australia.

The priority programmes of WUS include education and training for refugees, stipends and other financial assistance for students in backward and handicapped areas as also undertaking various measures to ensure improvement in the position of women; increasing emphasis is now being laid on linking the human and technical resources of the universities with development needs of the community.

News from Agricultural Universities

PAU Kisan Mela

A one day Kisan Mela to impart new knowledge to farmers in respect of ensuing rabi crops, farm machinery and animal care was recently organised by the Punjab Agricultural University. Inaugurating the Kisan Mela, Mr. Surendra Nath, Governor of Punjab and Chancellor of the PAU said that the agricultural development of Punjab was an example for the whole country. The credit of this unprecedented foodgrain production went to the agricultural scientists and responsive farming community of the state. Mr. Surendra Nath said that the country was not only self-sufficient to meet its domestic needs but was also in a position to export foodgrains to other countries. He further said that despite disturbed conditions the state has maintained its level of production. He appreciated the extension education programme of the PAU for quick transfer of farm technology to the farmers of the state.

Dr. Khem Singh Gill, Vice-Chancellor of the PAU while welcoming the Governor said that the PAU was

evolving new technologies to educate the farmers on the judicious use of farm inputs, water management and integrated pest control to increase crop yield per unit area. He revealed that Punjab produced 28 percent of the total cotton production of the country. He said that the PAU had evolved red rot resistant varieties of sugarcane and the sugar recovery of these varieties was excellent. He said that the teams of University experts have been deputed to monitor the appearance of certain insect pests and diseases and educate the farmers to control them. Dr. Gill said that to develop dairy industry in Punjab there was a need to set up an advanced centre of buffalo improvement at the University, since dairy farming was the most profitable enterprise for the farmers.

Various departments of the University had put up their stalls to educate the farmers about the cultivation and care of various rabi crops, use of fertilizer, plant protection measures, time and labour saving implements, care of cross-

bred cows and high producing buffaloes and home keeping.

More than 10,000 farmers from all over Punjab and adjoining areas attended the Kisan Mela.

Farmers Fair at HAU

A two-day Annual Farm Darshan Mela was recently organised by the Haryana Agricultural University at Hisar. More than 6000 farmers from Haryana and adjoining states saw the kharif crops of bajra, groundnut, cotton, sugarcane and soyabean etc. grown with the latest technology.

According to Dr. M.S. Kairon, Director, Extension Education, during the mela dummy demonstrations were given on the application of latest technology in rabi crops. Through these demonstrations, the

farmers were encouraged to adopt new technology and were acquainted with the procedure of practical application of new technology.

A unique feature of the mela was that farmers' knowledge of the new technology was tested by the scientists and those who gave satisfactory answers, were given prizes by the Vice-Chancellor, Dr. A.L. Chaudhry. Dr. Chaudhry addressed the farmers on this occasion. He asked them to keep close rapport with the scientists for the improvement of their Agriculture and livestock.

Adequate literature on cultivation of different crops and rearing of animals on scientific lines was made available to the visiting farmers at subsidised rates.

News from Abroad

British Universities Contemplate 2-Semester Year

The Committee of Vice Chancellors and Principals (CVCP) is contemplating to direct the universities to move towards a two semester system. This would, if implemented, bring Britain into line with America and much of Europe and allow four months in the summer for summer schools, work placements, research and conferences.

The CVCP's academic advisory committee, chaired by Colin Campbell, Vice Chancellor of Nottingham University, has already issued a note on the advisability on modularisation, seen as a step on the road to two semesters. Professor Campbell sees the latest discussions as "a move in the right direction".

More than three-quarters of senior representatives from 34 universities at a seminar to discuss modularisation said they favoured

two semesters. They felt that the CVCP should give a strong lead.

The seminar was organised by Malcolm Deere, Secretary of the Standing Conference on University Entrance and Gaie Davidson from the school of continuing education at Kent University.

Although representatives did not want an announcement yet on whether the two semesters should be grafted on to three terms or involve a total break into two 15 week terms separated by Christmas, they were anxious that debate on the subject was initiated.

Two 15 weeks terms would enable students to study for 12 weeks, leaving three weeks for assessment. It would also enable students to change course after one term and would allow convenient research breaks of one semester.

Dr Davidson explained: "Once modularisation has been in place for a year, universities realise that modules suit 15 week blocks and fall awkwardly into three terms. The semester system is the next step."

Stirling University has operated a two semester system for the last 23 years.

Dennis Farrington, the registrar, said: "We want the CVCP to organise a conference so that we can explain to people how our system works. It is one of our biggest selling points to students."

UNIVERSITY OF POONA

Ganeshkhind, Pune 411 007

CORRIGENDUM

Advt. for the post of Registrar appearing in University News of September 30, 1991. Please read "the post is reserved for Scheduled Caste, however, others may also apply. They shall be considered if a suitable Scheduled Caste candidate is not found available" for the sentence, "other things being equal, candidates belonging to SC/ST/DTNT will be given preference".

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All Success
to the
66th Annual Meeting
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Association of Indian Universities

Gujarat University,

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The Story of the Defence Technology in India

S. Sampath*

Kapur, Major-General B.D. Building a Defence Technology Base. New Delhi, Lancer International, 1990. viii 200 p. Rs.200.

The Book

This interesting book describes the sequence of events that led to the setting up of the Research and Development Organization, under the aegis of the Defence Ministry of the Government of India, in 1957, soon after Krishna Menon became the Defence Minister. It has been written by Major-General B.D. Kapur, whom Lord Mountbatten had occasion to describe, in his letter to the Prime Minister of India, Jawaharlal Nehru, as "a brilliant soldier who held the post of Chief Controller of Research and Development in the Ministry of Defence, with outstanding success, for a period of ten years". General Kapur's credentials for writing on the theme chosen by him are indeed very high.

The Emergence of Defence Research

The author, who was commissioned into the Indian Army in 1936, held, in the course of a colourful military career, several positions of

**Vice-Chancellor, Sri Sathya Sai Institute of High Learning, Prasanthi Nilayam-515134 (Anantapur, Dist. A.P.)*

Former Chairman, Recruitment and Assessment Centre, Defence Research and Development Organisation, Ministry of Defence, Govt. of India.

high responsibility: Chief Signal Officer (prior to 1952); Director of Weapons and Equipment in the Army Headquarters (1952-54); Joint General Manager, Bharat Electronics Ltd., Bangalore (1954-56); and Executive Secretary and Director of Planning, Defence Production Board, Ministry of Defence (1956-58). In September 1957, he was called by the Defence Minister to attend a meeting at which several top Officials of the Ministry were present. Krishna Menon opened the meeting with these words: "Brigadier, I am forming a Defence Research and Development Organization. Would you work with Dr. Kothari? You will have to conduct the affairs and carry the responsibility; but Dr. Kothari will be its Head. What have you to say?" The Brigadier, who was overwhelmed, by what the Minister had stated, said 'Yes'. He followed this up by preparing a memorandum for the Chief of Staffs Committee, in which he explained the need for the formation of a Research and Development Organization as a separate entity from the Production Organization in the overall Defence set up. He could facilely perform this task as he had been writing extensively on this subject and had contributed a series of incisively brilliant articles to the United Services Institution Journal.

Major-General Pratap Narain, who was at this time the Controller-General of Defence Production (CGDP) — and the author describes him as 'a sworn opponent of Research and Development', was against the idea, but, on being told that he would be bypassed and a Government Order would be issued in any case, appended his signature to the Document. The then Chiefs of Staff did not relish the idea either and sent a dissenting note to the Ministry. The Defence Minister was abroad at this time, attending a meeting of the United Nations. Soon after he returned to Delhi, he summed to his room the top-hierarchy of the Ministry. What happened at this meeting, on 25th December, 1957, is best read in the author's words :

"Thundered Krishna: Am I the Defence Minister or not? Why have my orders not been carried out? The R & D Department has to be formed by 1st January, 1958. These are my orders. The Additional Secretary will take necessary action at once".

Thus the Research and Development Organization of the Defence Ministry was born. Brigadier Kapur assumed office as the first Chief Controller of R & D (C.C. R&D) on 1st January, 1958. The eminent scientist, Dr. D.S. Kothari was then the Honorary Scientific Adviser to the Defence Ministry.

The CGDP continued to stall the proceedings as he was unwilling to part with the Development Component and place it under the new fold of Defence R & D. The then Army Chief and the Army Commanders took the view that the con-

cept of R & D was 'a foolish adventure with Scientists that would only lead to the building up of an ivory tower that will soon become uninhabitable'. Yet, undeterred by the pinpricks and embarrassments, the Brigadier persisted in his efforts. He succeeded in getting the following Units transferred to Defence Research and placed under his control: the Defence Science Laboratory, the Psychological Research Unit, the Fire Adviser's Establishment and the Institute of Armament Studies. He drew up an expansion plan and, by a skilful manoeuvre, got it approved by the Finance Secretary (Expenditure) of the Government of India. He planned the general build up of the R & D Organization, making provision for an autonomous R & D Council. With assistance from his colleagues, he got a sizeable number of R & D Projects formulated.

Krishna Menon had his vision of India's leadership coupled with a strong desire to see the country become self reliant in terms of a good defence base. His choice of Brigadier Kapur, for the mission assigned to him, appears, in retrospect, to be an act of Providence. With the fund of experience gained through his army-assignments, deep commitment to the concept of R & D to fulfil Defence requirements and wondrous dexterity in dealing with high dignitaries and eliciting their cooperation in the implementation of the programmes envisioned by him, Brigadier Kapur was able to lay a good foundation for Defence research. If Krishna Menon had chosen a civilian Scientist, however eminent, for the post of C.C.R & D at that time, the chances are that such an appointee might not have been able to find his way through the maze of difficulties and obstacles, at every step on his path, and, in con-

sequence, Defence R & D may have ended up as a still-born child. The Nehru-Menon-Kapur combination has worked admirably to the country's advantage.

The Role of the Soldier-Technologist

Krishna Menon, with his characteristic sense of humour, introduced the newly appointed C.C. R & D to a mixed gathering of Service Officers and Scientists thus: "The Scientists avoid him because he is a 'General'; and his old Army colleagues shun him because he is now a 'Scientist'." The General Staff Policy Committee was most reluctant to associate the C.C.R & D with its deliberations. He had initially to work against a hostile background. The relieving feature was that the Chiefs of Staff were old friends with whom he had rubbed shoulders when they held lower ranks and he had access to them. Soon he managed an entry into the Chief of Staffs Committee. Good rapport was established with the new Chief of the Army Staff, General J.N. Chaudhri; and several useful studies emanated from the cordial relationship: an operational research study to ascertain the reasons for the army debacle during the Chinese attack on India in 1962; a critical review of the army reporting system; a workstudy on the Secretariat of the Chief of Army Staff; and a major O.R. exercise aimed at developing methods for enhancing the rate of supply on the line of communication to the Combat area. The C.C. R & D formed a number of study groups consisting of Scientists and Service Officers and began personally directing their work. The exercise turned out to be so interesting that General Chaudhri began attending the Study Group meetings held in the office of the C.C. R & D. The

latter was soon able to elicit cooperation from the Chiefs of the Navy and the Air Force also.

A strategy that paid good dividends was to give importance to the Services in the running of the R & D Units created primarily to cater to the direct needs of the Services. Notable examples in this category are: the Institute of Armament Studies; the Staff Selection Training School; and the Directorate of Standardization. Through exercises of this kind, Service Officers were brought close to R & D at a working level and this helped to infuse in them confidence in the ability of R & D to bring benefits to the Services. It began to be realized that the Soldier and the Technologist have complementary roles to play. When development projects were introduced into the civilian-industries sector, the latter began to perceive the value of a military technologist attached to them, because with his guidance, the development time got reduced and the civilian engineer got educated in the complexities of military operational systems and requirements. In technology areas such as armaments, electronics and military engineering, the policy followed was to place in positions of leadership the military technologists. In other establishments, such as those dealing with metallurgy, nuclear medicine, physiology and food research and headed by Civilian Scientists, the military technologists were placed in appropriate levels of authority and decision-making. A sense of mutual support began to be generated in the place of the feeling, that R & D was sought to be forcibly imposed on the conduct of military affairs. The author's pioneering contribution in this critical area merits high appreciation.

The Nexus Between R & D and Production

The creation of Defence R & D, as a distinctive entity away from Defence Production, created numerous stresses and strains. The author has given an interesting account of several thoughtful steps that he took in this area of conflict.

He recalls the infructuous nature of the work done by the Defence Production Board, set up in 1956, of which he was the Executive Secretary, on account of the disagreements between the Services' Representatives and the Ministry's Officials. Yet, during this period, using his position as Director of Planning, he succeeded in setting up five new factories, of which the two relating to 'Tanks' and 'Explosives' have become the foundations for two good Defence Establishments. He was also able to contribute to the modernizing of the Ordnance Factories, the reorganizing of the management structure of the DGOF and making all-round improvements in materials planning and inventory-control.

In January 1958, Krishna Menon set up a Production Committee for a review of production plans to meet Defence requirements. The author, who was appointed as Secretary of this Committee, prepared a plan of action for its work. He records with sadness that, owing to the intransigence of the two Officers holding the posts of CGDP and DGOF, the Production Committee became a non-starter. The meetings of the Committee became occasions for personality clashes. "The Chiefs of Staff were laughing, all the time, saying: 'You took away control from us. Now it is for you to sort out the problems'." The other complication was that the CGDP controlled both Production and Inspection. This led to a tendency to lower standards when production got held up.

There arose two technical authorities in Defence: the Inspectorate and the R & D. 'This gave the Secretariat the neutral position to exploit the experts at the meetings, much to the amusement of the Service Chiefs'.

Against this sombre background of bickerings and lack of commitment, the author recounts a few tangible achievements that resulted from the friendship between persons in authority on the two sides of the fence. The rapport that he established with Shri J.J. Shahaney, the new DGOP, led to some remarkable results: the successful development of the 106 Recoil-less Gun, on the model of a deadly Anti-Tank Gun of U.S. Design, by Indian designers, engineers and scientists; the 75 mm Package Howitzer; a Mountain Gun; an anti-Tank Grenade of Indian design; and a self-loading Rifle which came to be referred to as the Ishapore Rifle. The last mentioned item has an interesting background. Earlier efforts to progress it has been stalled by opposition from the Infantry. The CC R&D made a bold decision to undertake this Project as an R & D exercise. A pre-production model, that was produced, showed excellent promise; but Rear Admiral Daya Shankar, who was then the DGOF, opposed the Indian Project and successfully lobbied with the General Staff at the highest level. The difficulties became accentuated as Krishna Menon was no longer the Defence Minister. Shri S.S. Khera, Cabinet Secretary had to take the final decision. After a series of consultations, he turned to the CCR & D for advice. The latter unhesitatingly and un-equivocally recommended the adoption by the Indian Army of the Ishapore Rifle. He had the strong support of the DGOF. An important favourable

decision was made, thanks to the tenacity and vision of General Kapur.

Towards the end of his tenure, drawing lessons from his bitter experience on the problems that arose between the CGDP and CCR&D, General Kapur put forward a proposal that involved subordinating the status of the CCR & D to that of the CGDP and merging the two Organizations, leaving the purely scientific activities to be placed under the care of the Chief Scientist. In this scheme, the Technical Development Directorates of R & D would join hands with the allied Production Directorates and ensure uniform control over the Development, Production and Inspection functions. The Scientific Adviser would exercise overall jurisdiction over Defence Research and Production. The author records wistfully that the newly appointed Scientific Adviser, Dr.S. Bhagavantam, did not like the idea; and it had to be dropped.

The lesson that comes through clearly is the following: the scientific effort has to be integrated in all facets of Defence activities: formulation of operational policies; evaluation of new weapon-systems, analytical studies on the impact of new weapons on tactics and strategy; O.R. studies to improve the efficiency of fire-power; etc. Scientists should be left free to develop equipment, according to the dictates of their genius, and get the tests and evaluation done on their merits in an impartial manner. Says the author: 'The Scientist may not always be right, but it will be tragic if he is blocked by the lack of imagination on the part of one single Officer occupying a key-position'. He points out with a sense of pride and achievement that, during his tenure, by adhering to this concept,

he paved the way for the successful development, within the country, of the Ishapore Semi-automatic Rifle, the 106 RCL Gun, the Package Mountain Gun and the Wireless Set 'P'.

Technological Support from Overseas

During his professional career, the author, became the beneficiary of several opportunities that came his way to visit the Western World and he made full use of these to gather valuable insights into the ongoing development processes. It was characteristic of him to enlarge the scope of his visit and not remain content with doing the Government-allotted work.

On one occasion, when Krishna Menon hosted a reception in New York for Foreign Ministers of various countries, he introduced General Kapur to those present as 'a Solidier-Scientist from India'. Such an introduction helped him to become acquainted with professional leaders like General Maxwell Taylor, who was Chairman of the U.S. Joint Chiefs of Staff and Dr. Harold Brown, Chief Scientist. This paved the way for an extended tour of the U.S.A., covering laboratories, air-force bases and radar and missile training centres.

In 1960, he led the Indian Delegation to the Commonwealth Defence Science Conference held in England. Here he met the leaders in Defence Science in Great Britain, such as Sir Solly Zuckerman, Scientific Adviser, Mr. Aubrey Jones, Minister of Supplies (Defence), Mr. Harold Brown, Director of Research and Training and Prof. Lord P.M.S. Blackett. The author won their friendship and maintained a warm relationship with them over the years.

The author's link with Lord Mountbatten of Burma was of a special and enduring kind. The illustrious Englishman's regard for this Indian friend was so high that he had him elected as the Vice-President of the British Institute of Radio and Electronic Engineers — a rare distinction for an Indian national.

A Chapter in the Book is replete with reproduction of the letters received by General Kapur from these eminent personalities.

Debt of Gratitude to the Mentors

Thanks to the friendship bestowed on him by Krishna Menon, the author had a special line of communication with Jawaharlal Nehru, Prime Minister of India. Says the author: "Because of his implicit trust in Krishna Menon and, hence, in me, the Prime Minister was wont to say: 'General, now that you have spoken to me, go ahead'."

The author attributes all the useful results that he was able to produce to the grace that Krishna Menon showered on him. Of his hero, he says: "He was a great actor in public but a mild, ever-smiling human being, known to those who knew him intimately. In his tender moments, he could be extremely warm and friendly. As India's Defence Minister, Krishna Menon laid the foundation for self sufficiency in Defence equipment. And he was, in the true sense of term, a World Citizen".

To Dr. D.S. Kothari, friend, philosopher and guide, the author pays this handsome tribute: "This eminent Indian Scientist was the creator of Defence Science in India, its Patron and Adviser for fifteen years. He was a source of strength for Scientists, irrespective of their rank or status. He gave them all an opportunity to become part of a Ser-

vice that carried prestige in the eyes of the nation".

A Plea by the Reviewer

No one could have been more advantageously placed than General Kapur to portray vividly the dramatic events that occurred during the momentous early years of the Defence R & D Organization (1958-64). After his retirement in July 1964, he has been very active in industrial consultancy and in various assignments for U.N. agencies and the Commonwealth Secretariat. The author has published this book on 'Defence Technology' in 1990 — twenty-six years after he took leave of the Organization. The readers would have greatly benefited if he had added a final chapter containing his incisive appreciation of how well Defence R & D has grown over the quarter-century that followed the Nehru-Menon-Kapur period. The intriguing questions are the following: Has the foundation, as built by the first CCR & D, endured? Is the solider-Technologist playing the role envisaged by the author? With regard to the interface between Production and R & D, have the initial teething troubles become a thing of the past and are today's meetings held in a cordial atmosphere? Is the goal of self reliance, in terms of a Defence base in the country, envisioned by Krishna Menon any nearer after 33 years of trial and error? Is the country getting a reasonable return for the investments being made on Defence Research? The author's reflections on these issues would have been most valuable.

After Krishna Menon, there have been several strong personalities in the Chair of the Defence Minister: Y.B. Chavan, R. Venkataraman,

P.V.Narasimha Rao, V.P. Singh, K.C. Pant, Rajiv Gandhi and, currently, Sharad Pawar. Dr. Kothari has been succeeded by a galaxy of brilliant Scientists as Scientific Advisers to the Defence Minister: Dr. S. Bhagavantam, Dr.B.D. Nag Chaudhuri, Prof.M.G.K. Menon, Dr. Raja Ramanna and the present incumbent, Dr. V.S. Arunachalam. They have all made their distinctive marks on the tempo of work under the umbrella of Defence Research.

In 'Years of Pilgrimage' - an autobiography by Dr. Raja Ramanna, there is one chapter that deals with Defence Research. Some of the observations made on the health

of the Organization are such as to cause grave concern.

The reviewer, who as Chairman of the newly set up Recruitment and Assessment Centre (RAC) of DRDO, during the period 1986-90, had the opportunity to meet and assess the work of a large number of scientists from all the laboratories of the Organization. He has no hesitation in stating that DRDO is a forward looking S & T enterprise - perhaps the best in the country today, in terms of what has been achieved so far, its potential for even greater achievements in the future and the high motivation of its members at all levels of responsibility. It

would be in the fitness of things if a person, as qualified as General Kapur, is commissioned to write a follow-up Volume on "DRDO - Years of Consolidation and Growth (1964-91)". The reviewer knows another Soldier-Technologist, Major-General K.N. Singh, presently CCR&D in DRDO, a man with vision, courage, dedication and fine human qualities, who may well be entrusted with this task. On this need, an appeal should be made to the Defence Minister, Shri Sharad Pawar - known for his dynamism and commitment to see the country become strong, remain stable and attain a position of respect in the Comity of Nations.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages.	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035 Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004 Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair - 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

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PROFESSORS, READERS & LECTURERS

Dated : 12 September 1991

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2.	Management Studies	SC/ST	1	Management Studies.
3.	Electronics	Open	1	Robotics/Artificial Intelligence.
4.	Management Studies	OBC	1	Financial Management.
5.	Environmental Studies	Open	1	Environmental Studies.
6.	Marine Sciences	OBC	1	Chemical Oceanography.
7.	Mathematics & Statistics	Open	1	Computer Application.
8.	Marine Sciences	OBC	1	Marine Geophysics.
READERS				
9.	Computer Science	OBC-1, Open-1	2	Computer Science.
10.	Polymer Science & Rubber Technology	SC/ST	1	Rubber Technology
11.	Industrial Fisheries	SC/ST	1	Management.
12.	Physics	OBC	1	Opto Electronics/Laser Technology.
13.	Industrial Fisheries	Open	1	Fisheries.
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17.	Hindi	Open	1	Hindi
18.	Mathematics & Statistics	OBC-1, Open-1	2	Computer Application.
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20.	Marine Sciences	Open	1	Marine Geology.
21.	Marine Sciences	SC/ST	1	Marine Geophysics.
LECTURERS				
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24.	Mathematics & Statistics	Open	1	Operational Research/Computer Science/History of Mathematics.
25.	Management Studies	OBC	1	Commerce
26.	Electronics	Open-1, OBC-1	2	Robotics/Artificial Intelligence/Computer Science.
27.	Computer Science	Open	1	Computer Hardware/Software.
28.	Physics	OBC	1	Material Science.
29.	Ship Technology	Open	1	Fluid Mechanics.
30.	Ship Technology	OBC-1, Open-1	2	Naval Architecture.
31.	Applied Chemistry	OBC	1	Plant Bio-Technology.
32.	Applied Chemistry	Open	1	Inorganic Chemistry.
33.	Environmental Studies	SC/ST	1	Environmental Studies/Marine Biology/Research experience in Toxicology Aquatic.
34.	Marine Sciences	Open	1	Chemical Oceanography.
35.	Marine Sciences	OBC	1	Computer Application in Marine Science.
36.	Mathematics & Statistics	OBC-1, Open-2	3	Computer Application.
37.	Mathematics & Statistics	OBC	1	Statistics (Survey Sampling/Design of Experiments).
38.	Marine Sciences	Open	1	Marine Geology.
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C. Other details:

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2. Age limit prescribed will not be applicable to the teachers already in the service of the Cochin University of Science and Technology.
3. The selection and appointment against the above posts will be made in accordance with the provisions contained in the Cochin University of Science and Technology Act 1986 and the rules prescribed by the University in this regard.
4. Communal rotation and reservation principles as provided under clause (a), (b) and (c) of Rule 14 and the provisions of Rules 15,16,17 and 17A of Kerala State and Subordinate

Service Rules, 1958, as amended from time to time will be applicable to all the above posts while making appointments to these posts.

5. The candidates belonging to open categories who fulfil the conditions of qualifications, experience etc. may also apply for the posts reserved for candidates belonging to OBC. They will be considered if suitable candidates are not available from the OBC.
6. The posts reserved for the candidates belonging to SC/ST communities are exclusively reserved for them and hence applications of candidates belonging to other communities will not be considered for such posts.

D. How to apply :

- (i) Prescribed application forms alongwith information sheets can be had on payment of Rs. 5/- at the University Cash Counter. Candidates belonging to SC/ST Communities can get the same, free of cost. Application forms will be sent by post if requested along with a demand draft for Rs. 5/- drawn in favour of the Registrar, Cochin University of Science and Technology, payable at the State Bank of Travancore (Thrikkakara Branch) and a self-addressed envelope (23 x 20 cms) bearing postal stamp (worth Rs. 3/-). Candidates belonging to SC/ST communities need not send the demand draft but have to send self addressed envelopes bearing postal stamps.
- (ii) Candidates applying from abroad may send their applications on plain paper giving full particulars of date of birth, examinations passed from High School onwards with division and percentage of marks obtained in various examinations, teaching/research experience with a list of publications.
- (iii) Request for applications by post should reach this office on or before **24 October 1991**.
- (iv) Separate applications should be submitted for each post applied for alongwith the registration fee as mentioned in the information sheet supplied alongwith the application form.
- (vi) Completed applications alongwith copies of documents to prove age, community, qualifications, experience etc. should reach the office of the Registrar before 5.00 p.m. on or before **14 NOVEMBER 1991**. Late and defective applications will be summarily rejected.

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Jamia Hamdard was conceived as a seat of higher learning by Janab Hakeem Abdul Hameed, the founder Trustee of Hamdard National Foundation. Jamia has evolved out of a number of Institutes and Colleges which in their initial stage were part of Institute of History of Medicine and Medical Research.

Jamia Hamdard is situated in the sylvan surroundings of Tughlaqabad on the Mehrauli Badarpur Road surrounded by Tughlaq Fort in the east, Qutab Minar in the west, Jahan Panah City Forest in the north, and overlooking hillocks and ridges in the south. The site is picturesque and is away from the din of the metropolis.

Jamia Hamdard has following Faculties:

1. Faculty of Pharmacy
2. Faculty of Islamic Studies & Humanities
3. Faculty of Medicine
4. Faculty of Science
5. Faculty of Nursing

Faculty of Pharmacy

The Faculty of Pharmacy has the following departments:

1. Department of Pharmacognosy and Phytochemistry
2. Department of Pharmacology
3. Department of Pharmaceutical Chemistry
4. Department of Pharmaceutics

Courses offered:

- a. Ph.D.
- b. M. Pharm (duration two years)
- c. B. Pharm (duration four years)
- d. D. Pharm (duration one year)

Faculty of Islamic Studies & Humanities

The Faculty of Islamic Studies and Humanities has the following Departments:

1. Department of Comparative Religion
2. Department of Islamic & Comparative Law
3. Department of Islamic Studies

Courses offered:

The Faculty offers various research courses leading to the award of Ph.D. and M.Phil.

Faculty of Medicine

The Faculty of Medicine has the following undergraduate departments:

1. Department of Kulliyat
2. Department of Tashreeh and Nunafaul Aza
3. Department of Ilmul Advia
4. Department of Hifzan-e-Sehat and Ilmul Samoom
5. Department of Amraz-e-Niswam, Qabalat Wa Atfal
6. Department of Mualijat
7. Department of Jarahiyat

Courses offered: At present the following courses of study are offered:

1. Pre-Tibb (Two year preparatory course)
2. B.U.M.S. (Five and a half year course)

Faculty of Science

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1. Department of Chemistry
2. Department of Bio-Chemistry
3. Department of Medical Elementology and Toxicology
4. Department of Botany
5. Department of Clinical Pharmacology and Therapeutics and the following department are being established during the 8th Plan period:
6. Department of Bio-technology
7. Department of Immunology
8. Department of History of Medicine and Science

Courses offered: The Faculty offers various research courses leading to the award of Ph.D. and M.Phil.

Faculty of Nursing. The aim of establishing this faculty is to encourage students from the poorer and backward sections of society particularly the minority community, scheduled castes, scheduled tribes so that their living standards could be raised. Majeedia Hospital in Hamdard Nagar serves as a teaching and training hospital for trainees of the school.

Courses offered: Faculty of Nursing offers a Diploma in Nursing (3 years duration)

SPORTS CALENDER : 1991-92

S.No.	Game	Organising University	Last date of closing the entries	Last date of closing the detailed entries	Date of Commencement of the tournaments
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A. GAMES ON ALL INDIA BASIS

1.	Ball Badminton (M)	Madras	Nov. 20	—	Jan. 4
2.	Ball Badminton (W)	Madras	Dec. 3	—	Jan. 17
3.	Boxing	Banaras	Nov. 24	Dec. 29	Jan. 8
4.	Chess	Bhagalpur	Oct. 28	—	Dec. 12
5.	Cricket (W)	Poona	Oct. 1	—	Nov.15
6.	Cross Country Races (M)	H.P. Krishi	Sept.5	—	Oct. 20
7.	Cycling (M&W)	Kerala	Nov. 25	—	Jan. 9
8.	Gymnastics & Malkhambh	Vacant	Oct. 26	Nov. 30	Dec. 10
9.	Hockey (W)	Manonmaniam Sundaranar	Sept. 24	—	Nov. 8
10.	Judo (M&W)	Delhi	Nov. 26	Dec.31	Jan. 10
11.	Korfball	Agra	Dec. 16	—	Jan. 30
12.	Rowing (M)	Vacant	Nov. 23	Dec.28	Jan. 7
13.	Rowing (W)	Vacant	Nov. 23	Dec.28	Jan. 7
14.	Squash Rackets	Punjabi	Dec. 1	—	Jan. 15
15.	Swimming, Diving & Water Polo (M&W)	Rajasthan	Aug. 26	Sept. 30	Oct. 10
16.	Wt. Lifting & Best Physique	Vacant	Dec. 1	Jan. 5	Jan.15
17.	Wrestling	MDU, Rohtak	Oct. 1	Jan. 5	Nov. 15
18.	Yoga	HAU, Hisar	Dec. 8	—	Jan 21

S.No.	Game	Zone	Organising University	Last date of closing the entries	Date of commencement of the Inter-Zonals
1	2	3	4	5	6

B. GAMES ON TWO-ZONE BASIS

1.	Football (W)	NEZ&IZ SWZ	GNDU Mahatma Gandhi	Aug. 17	Oct. 1
2.	Handball (M&W)	NEZ SWZ&IZ	Jammu Poona(W) Andhra (M)	Sept. 10	Oct. 25
3.	Kabaddi (W)	NEZ&IZ SWZ	Kanpur Bombay	Sep. 17	Nov. 1

S.No.	Game	Zone	Organising University	Last date of closing the entries	Date of commencement of the Inter-Zonals
1	2	3	4	5	6
4.	Kho-Kho (M)	NEZ	Kanpur	Nov. 17	Jan. 1
		SWZ&IZ	Karnatak		
5.	Kho-Kho (W)	NEZ&IZ	Kanpur	Dec. 14	Jan. 28
		SWZ	RDV, Jabalpur		
6.	Tennis (M)	NEZ&IZ	Panjab	Dec. 14	Jan. 28
		SWZ	Sri Venkateswara		
7.	Tennis (W)	NEZ&IZ	Vacant	Dec. 2	Jan. 16
		SWZ	Osmania		
8.	Volleyball (W)	NEZ&IZ	H.P. Krishi	Oct. 7	Nov. 21
		SWZ	Mangalore		

C. GAMES ON FOUR-ZONE BASIS

1.	Athletics	NZ	Kanpur	Nov. 12	Dec. 27
		EZ	BIT(Ranchi)		(Detailed entries close on Dec. 6)
		SZ	Annamalai		
		WZ&IZ	LNCPE, Gwalior		
2.	Badminton (M&W)	NZ	Gurukul Kangri	Sept.10	Oct. 25
		EZ	North Bengal		
		SZ	Mysore		
3.	Basketball (W)	NZ	Jamia Millia	Oct. 1	Nov. 15
		EZ&IZ	APS, Rewa		
		SZ	Gulbarga		
		WZ	Ajmer		
4.	Cricket (M)	NZ	Jamia Millia	Nov. 18	Jan. 12
		EZ	L.N. Mithila		
		SZ&IZ	Gulbarga		
		WZ	Vacant		
5.	Hockey (M)	NZ&IZ	Meerut	Dec. 10	Jan. 24
		EZ	Ravishankar		
		SZ	A P Agril		
		WZ	Jodhpur		
6.	Kabaddi (M)	NZ	Kurukshetra	Oct. 13	Nov. 27
		EZ	Calcutta		
		SZ&IZ	Kerala		
		WZ	South Gujarat		

1	2	3	4	5	6
7.	Table Tennis (M&W)	NZ EZ SZ WZ&IZ	Dr. Y.S. Parmar Calcutta Madras Gujarat	Oct. 28	Dec. 12

D. GAMES ON EIGHT-ZONE BASIS

1.	Basketball (M)	NZ'A' NZ'B' EZ'A' & IZ EZ'B' SZ'A' SZ'B' WZ'A' WZ'B'	IIT, Kanpur Panjab Berhampur BHU Andhra Manonmaniam Sundaranar Gujarat Agril. M.L. Sukhadia	Oct. 17	Dec. 1
2.	Football (M)	NZ'A' NZ'B' EZ'A' EZ'B' SZ'A' SZ'B' & IZ WZ'A' WZ'B'	Aligarh Panjab Visva-Bharati Guru Ghasidas Sri Venkateswara Calicut Amaravati Devi Ahilya	Oct. 1	Nov. 15
3.	Volleyball (M)	NZ'A' NZ'B' EZ'A' & IZ EZ'B' SZ'A' SZ'B' WZ'A' WZ'B'	Meerut HPU, Shimla Sambalpur L.N. Mithila Kuvempu Mahatma Gandhi Marathwada Punjabrao Krishi	Sept. 21	Nov. 5

IMPORTANT NOTE

The dates of the Zonal tournaments will be decided by the Zonal Organising Universities in coordination with the commencement of the respective Inter-Zonal dates keeping in view the travelling period of the Zonal qualifiers from the zonal venues to the Inter-Zonal venues & also keeping in view that the Zonal qualifiers need approximately one day's rest on arrival at the Inter-Zonal venue before they compete. It would mean that the organising universities of the Inter-Zonals will sufficiently in advance confirm to the respective zonal organising universities about the date of commencement of the Inter-Zonals. The Zonal organising universities are also advised to get in touch with the organising universities of the Inter-Zonals sufficiently in advance to ascertain the dates of commencement of the respective Inter-Zonals so that they can plan in advance their respective Zonal dates in perfect coordination with the Inter-Zonal dates.

ABBREVIATIONS : NZ – North Zone, EZ – East Zone, SZ – South Zone and WZ – West Zone,
IZ – Inter-Zonal

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3. Shahida Bano. *Grameen jeewan ke pariprekshya mein Muslim samudaya ka adhyayan: Shajapur Jile ke vishesh sandarbh mein.* Vikram. Dr M L Gupta, Department of Sociology, Madhav College, Ujjain.

4. Singh, Indu. *Nari niketan mein layee gayee mahilayon ka samajik evam manovalgyanik adhyayan: Ujjain evam Indore sthit nari niketan ke vishesh sandarbh mein.* Vikram. Dr R K Nanavati, Head, Department of Sociology, B S N College, Shajapur.

Political Science

1. Bagga, Sewak Singh. *Prashaskhya nyaya ke avadharna:*

Siddhant evam vyavhar. D.Litt. Devi Ahilya.

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2. Akhand, Bhimsen. *Laghu evam kutir udyogon ka vikas evam sambhavnayen: Ratlam Jile ke vishesh sandarbh mein*. Vikram. Dr A C Gulati, Department of Commerce, Madhav College, Ujjain.

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Punjabi

1. Darshan Singh. *Banda Bahadur nal sambadhit khand-kav de sandarbh vich Kartar Singh Kalaswalla ate Vidhata Singh Teer da tulnatmak adyayan.* Panjab. Dr H S Sachar, Reader, Department of Punjabi, Panjab University, Chandigarh.

2. Gurpreet Singh. *Hanuman natak: Editing and textual study.* Panjab. Dr Darshan Singh, Prof and Head, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh and Dr I S Sabber, Department of Guru Nanak Sikh Studies, Guru Nanak Dev University, Amritsar.

Hindi

1. Hari Kumar, J. *An analytical study of the fiction of Ilachandra Joshi.* Kerala. Dr S Thankamoni Amma, Reader, Department of Hindi, Institute of Correspondence Courses, University of Kerala, Kariavattom.

2. Jaya, K P. *An evaluation of the children's stories in Hindi.* Kerala. Dr V P Mohammed Kunju Metharu, Reader, Institute of Correspondence Courses, University of Kerala, Kariavattom.

3. John Panicker, V. *A comparative study of the plays of Dr Ram Kumar Varma, Hindi, and Prof N Krishna Pillai, Malayalam.* Kerala. Dr Vellayani Arjunan, Jeesha, T C 14/1760, Thycaud, Thiruvananthapuram.

4. Jose Mathew. *Social consciousness depicted in the novels of Bhalrav Prasad Gupta.* Kerala. Dr N Raveendranath, Head,

Department of Hindi, University of Kerala, Kariavattom.

5. Mary, N M. *Hindi upanyas ko Agyeya ke den: Naye drish-tikon ke sandarbh mein.* Kerala. Dr N R Eladom, Mukunda Sadan, Puliyanloor, Palai.

6. Nelson, D. *Mohan Rakesh ke natakon ka darshanik parivesh.* Kerala. Dr C P Rajagopalan Nair, Prof, Department of Hindi, University College, University of Kerala, Thiruvananthapuram.

7. Radhakrishnan, S. *Sangh sarkar ke rajbhasha niti ka karyanwayan: Samasyayen aur samadhan.* Kerala. Dr J Ramachandran Nair, Prof, Department of Hindi, Mahatma Gandhi College, Thiruvananthapuram.

8. Sailajakumari, V K. *Critical works of Dr Ramvilas Sharma and Prof Joseph Mundassery: A comparative study.* Kerala. Dr P Sanalkumar, Padmavilas, Ulloor, Pongummoodu Junction, Medical College P O, Thiruvananthapuram.

9. Sanjeev, C. *Nirala ke kavyabhasha: Ek shallivaigyanik adhyayan: Tulsidas, Ram ke shaktipuja aur kukurmatta ke adhar per.* Kerala. Dr V K Hariharan Unnithan, Prof, Department of Hindi, S N College, Chempazhanthu.

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14. Swarankar, Dharmendra. *Premchand ke bhasha: Lokok-tiyon aur muhavaron ke vishesh sandarbh mein.* Vikram. Dr Ravindra Bharati 'Chorya', 'Kavya-Kunj', 2/2 Teachers Hostel, Vikram University Campus, Ujjain.

Malayalam

1. Bhasi Raj, S. *Bhadrakalipattu and Kaliyoottu in South Kerala: A study.* Kerala. Dr B Sudhakran Pillai, Prof, Department of Malayalam, Mahatma Gandhi College, Thiruvananthapuram.

2. Jyothi, P V. *The social life as reflected in the Manipravala literature: A study.* Kerala. Dr P Somasekharan Nair, Editor, Malayalam Lexicon, University of Kerala, Kariavattom.

3. Prasad, V. *The influence of classical and folk arts on Kathakali.* Kerala. Prof S Guptan Nair, Viswabharati, Peroorkada, Thiruvananthapuram.

4. Somanachary, P. *The influence of mother-culture on modern Malayalam poetry with special reference to the poems of Edasseri, Viloppilly, O N V and Kadammanitta.* Kerala. Dr V S Ramakrishnan, Lecturer, Department of Malayalam, University of Kerala, Kariavattom.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Asiya Aijaz. A social psychological study of the hopes and fears of various religious groups. AMU. Prof Afzal S N Kureshi, Department of Psychology, Aligarh Muslim University, Aligarh.

2. Indu Prabha. A study of the effectiveness of cognitive/relaxation therapy in reducing self reported anxiety and improving the performance of test-anxious students. HP.

3. Patel, Nanubhai Somabhai. A study of certain socio-psychological factors affecting mate selection. Patel. Dr J B Patel, Reader, Department of Psychology, Sardar Patel University, Vallabh Vidyanagar.

4. Teresa, Neeliyara. Development of motivation scale. Bangalore. Dr S V Nagalakshmi, Department of Clinical Psychology, National Institute of Mental Health and Neuro Sciences, Bangalore.

Sociology

1. Mishra, Rashmi. Socio-psychological impact on the role of the police in the changing society. Sambalpur. Dr S Mohanty, Prof, Department of Sociology, Sambalpur University, Jyoti Vihar, Burla.

2. Vyas, Shailendra Kumar. M P mein mahila apradhi evam unki punrasthapana: Ek adhyayan. Vikram. Dr P K Saxena, Subhash Nagar, Saver Road, Ujjain.

Social Work

1. Chandrashekara, T S. Community participation in the implementation of integrated child development services scheme in Karnataka: A study in its retrospects and prospects. Bangalore. Dr H M Marulasiddaiah, Prof, Department of Social Work, Bangalore University, Bangalore.

2. Gupta, Krishna Kumar. Dynamics of pickpocketing as a career crime: A criminological investigation. H S Gour. Prof D K Mukharya, Department of Criminology and Forensic Science, Dr Hari Singh Gour Vishwavidyalaya, Sagar and Prof Samrendra Saraf, Department of Anthropology, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

Political Science

1. Gupta, Arvind. Ideology and the Soviet foreign policy in post Brezhnev period: A study of concepts. JNU. Prof Devendra Kaushik, Centre for Soviet and East European Studies, Jawaharlal Nehru University, New Delhi.

2. Joshi, Ramesh Chandra. Structure and functions of M P Uchcha Shiksha Anudan Ayog. Vikram. Dr R S Gautam, 20, Mahashveta Nagar, Ujjain.

3. Kaul, Rekha. The interaction between state and private interests in higher education: A study of professional colleges in Karnataka. Delhi.

4. Nasir, Nadir Ibrahim Bani. Jordan United Kingdom relations. Rajasthan. Dr Roop Singh Bareth, D-14, Dev Nagar, Tank Road, Jaipur.

5. Sandhu, Davinder Pal. Sikhs in Indian politics: A study of a minority. HP.

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7. Sohail Ashraf. American policy towards West Asia with special reference to Egypt-Israel relations, 1970-1980. AMU. Dr B Rahamatullah, Reader, Department of Political Science, Aligarh Muslim University, Aligarh.

8. Tripathi, Rauchan. Ramcharit Manas mein rajdarshan. Vikram. Dr C S Panwar, Department of Political Science, Vikram University, Ujjain.

Economics

1. Chowdhury, Monoj Kumar. Inter-district disparity in industrial development of Assam: An econometric approach. Gauhati. Dr Srinath Baruah, Prof, Department of Economics, Gauhati University, Guwahati.

2. Das, Raghunath. Retrospect and prospects of oilseed production in Orissa. OUAT. Dr C Satapathy, Assoc Director of Research, National Agricultural Research Project, Mahisapat, Dhenkanal.

3. Ganga Devi, S. Polytechnic education and employment of women in Tamil Nadu from 1978-79 to 1982-83. Terasa. Dr Yasodha Shanmugasundaram.

4. Kalita, Jagadish. Problems of land alienation amongst the plain tribals in Assam with special reference to Nalbari District. Gauhati. Dr Kailash Sarma, Head, Department of Economics, Nalbari College, Nalbari.

5. Kaul, Monoti. Common-land: The study of an economic asset with reference to Delhi, Haryana and Punjab. Delhi.

6. Mani, Sunil. The Indian automotive tyre-industry: A study of its structure and behaviour, 1936-1988. JNU. Prof Chiranjib Sen, Centre for Development Studies, Jawaharlal Nehru University, Trivandrum and Prof K K Subramanian, Centre for Development Studies, Jawaharlal Nehru University, Trivandrum.

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9. Sharma, Om Parkash. Competitiveness of Indian textiles in the EEC 1974-85. JNU. Prof H S Chopra, Centre for American and West European Studies, Jawaharlal Nehru University, New Delhi.

10. Singh, Vinod Kumar. Resource use efficiency in Haryana agriculture. HAU.

11. Srivastava, Rama Shankar. Technological change and economic efficiency on dairy farms: A frontier production function approach. NDRI. Dr Rajvir Singh, Head, Dairy Economics Division, National Dairy Research Institute, Karnal.

1. Dhakar, Om Prakash. **Human rights and some aspects of Labour Legislation in India: A critical study in emerging trends.** Rajasthan.

2. Mandal, Abul Hasem. **Growth of legal system for the protection of agricultural labours in West Bengal since independence: An appraisal study of the legislative measures undertaken so far.** Burdwan. Dr Nripendralal Mitra, Former Prof, Department of Law, University of Burdwan, Burdwan.

3. Singh, Shiv Sahai. **Unification of divorce laws in India.** Burdwan. Prof Harish Chandra Ghosh, Prof (Retd), Department of Law, University of Burdwan, Burdwan.

Public Administration

1. Igwe, Israel Okwudiri. **Local Government Finance in India and Nigeria: Comparative case studies of local finances in Maharashtra State (India) and Rivers State (Nigeria).** Nagpur. Dr P L Joshi, Prof and Head, Department of Political Science and Public Administration, Nagpur University, Nagpur.

2. Parmar, Mahinder Singh. **Problems of police administration in Himachal Pradesh: A case study of three districts: Bilaspur, Chamba and Shimla.** HP.

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Military Studies

1. Sukhvair Singh. **The Anglo-Sikh wars: A study of military dimensions.** Punjabi. Prof Surinder Singh, Lecturer, Department of Defence Studies, Punjabi University, Patiala.

Education

1. Bhoom Reddy, N. **Teaching aptitude and attitudes of secondary school teachers in A P.** Osmania.

2. David, Roma. **The contribution of breathing capacity, heart rate and breath rate ratio to physical fitness.** Punjabi. Dr C Giri, Lecturer, Punjab Govt College of Physical Education, Patiala.

3. Dhanasekaran, S. **Relevance of the course on audio visuals in B Ed. programme to present day educational technology requirements.** Madurai.

4. Emmanuel Raj, A. **Functional efficiency of autonomous colleges.** Madurai.

5. Rajyaguru, Mahesh Shantilal. **Ganitshastra ma atisiddhi ane nunesiddhi prapta karata vidyarthino tulanatmak abhyas.** Bhavnagar. Dr J D Bhal, Reader, Department of Education, Bhavnagar University, Bhavnagar.

6. Sivaramakrishnan, S. **Sunil Gavaskar: His life, career and contributions to cricket.** Madurai.

7. Usha, P. **A study of awareness, attitudes and skills of secondary school students of Hyderabad and R R Distts on population**

issues. Osmania.

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9. Prathaban, Shakti. **A critical analysis of working of land development banks in the agricultural development of Jabalpur Division.** Durgawati. Dr M K Mehta, G S College of Commerce and Economics, Jabalpur.

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Home Science

1. Asha Rani. **Organisational communication of inegrated child development service.** HAU.

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Management

1. Gupta, Des Raj. **Prospectus and problems of venture capital operations in India: A conceptual and empirical analysis.** HP.

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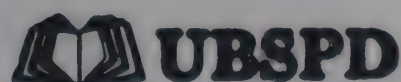
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Editor :
SUTINDER SINGH

Need for Interdisciplinarity

K. Venkata Reddy*

It is quite gratifying to note that the University Grants Commission (UGC) has decided to assist universities in creating fora for promoting studies of interdisciplinary nature (*The Hindu*, July 22, 1991). This has been done in view of the emerging trend the world over for interdisciplinary approaches to many of the problems which are becoming more and more important both in the Social and in the Physical sciences apart from Humanities. Also, the UGC has agreed to provide financial assistance up to Rs. 50,000 per annum to each university for setting up such a forum.

The forum for interdisciplinary studies in the university will provide a real platform for academics from different disciplines to come together and talk to each other — a phenomenon that has become progressively difficult in the university system over the last two decades. The faculty members of different schools come together in small teams to propose projects of research that need inputs from different disciplines.

The concept of encouraging academics from different disciplines to come together and work on research projects of common interest is both justified and benign. Interdisciplinary studies are intended to break down the present narrow compartmentalization of academic disciplines leading to artificial cleavages between cognate and neighbouring disciplines. Interdisciplinarity is necessary at all levels of education in India, from the very beginning of the teaching programme at the undergraduate level, to the research level. An interdisciplinary contact not only enhances one's own viewpoint but also enables one to appreciate other viewpoints. True interdisciplinarity enables one to not only develop a viewpoint but also to sharpen it. The underlying philosophy of inter-disciplinary studies is that the research projects must be linked to development issues. Hence the enormous significance that the University Grants Commission has attached to the interdisciplinary approach in Indian universities.

Interdisciplinarity is essentially a methodology for problem identification and problem solving. Since no single discipline can uniquely address all real world problems, it is necessary to view every real world situation from interdisciplinary viewpoints. Only when the reality is perceived through many viewpoints, we can claim to have identified the situation and then look for solutions. Inter-disciplinarity is actually seven sighted-men correctly identifying the elephant as an elephant, complete with legs, trunk, tail, ears and all.

There is a real need for interdisciplinarity in education at all levels. The practical world, like nature, does not tolerate segmentation. The real world is a complex whole, and we need to understand it as such. Segmentation and compartmentalization is necessitated by the constraints of academic disciplines rather than by physical or social reality. It is true that the ever-expanding quantum of knowledge results in narrower and narrower compartmentalization within each discipline, yet unless the academic is able to perceive the reality as a whole, his individual specialization can only be of very limited value. Therefore, it is essential in curriculum planning to ensure the inclusion of interdisciplinary methodology for the understanding of the real world.

There are many Indian academics who have moved from narrow
(Contd. on page 10)

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General Higher Education in India

A Few Issues

M. R. Kurup*

L. R. Thatte*

As expected, the new Government has decided to review the report of the Acharya Ramamurthi Committee vis-a-vis the 1986 document on Education. The Minister for Human Resource Development and the Prime Minister have underscored the need for improving the quality and organizational efficiency of education in the country.

In the course of our research on education, we too have felt that certain ideological stand as well as organizational problems are of utmost relevance and urgency from the point of view of the well-being of pupils, teachers and the society at large. The ideological stand, taken by earlier Education Commissions mainly based on manpower requirements and the rate of return approaches, is weak as it completely ignores the social, cultural and humanistic aspects of education. This led to the regulation of investment in education, either on the basis of manpower requirements or on economic efficiency of investment, in a manner similarly to any other sector of the economy. A few issues in general higher education which need urgent attention are briefly listed here¹.

Ideological Issues

We feel that there is no trade off between quantity and quality of higher education resulting from resource scarcity as considered by 1986 Education Policy. In view of the resource crunch, the policy recommended curtailment of the base of higher education without adequate and efficient provision for diversion and employment of the released resources for improving the quality. We cannot disregard three important factors in the context of higher education. First, enrolment at the level of higher education as a proportion of the relevant age group is hardly adequate in spite of the unprecedented growth that has taken place².

The wide difference in India's enrolment ratio and those of developed countries like Sweden, Canada and USA substantiate this. Secondly, in spite of the fact that there is a need to regulate expansion in view of the limitations of resources, it is not proper to deny expan-

sion altogether. The weaker sections of the society have looked upon education as the only means for vertical social and economic mobility. To deny them access to higher education would be against the canons of social justice and equity. Third, it would be improper to determine the demand for education from the point of view of the labour market alone without due consideration to social, cultural and humanistic aspects of national life.

The resource crunch, purported to limit the growth of higher education will disappear if non-government funds are tapped. There is a great potential for generating private resources in our country where savings and investments are rising, over three-fourth of which come from the household sector. What we need is appropriate, adequate and positive initiative to rope in the private sector. In a mixed economy, the objectives of widening as well as deepening of human capital will not be difficult.

A discriminatory pricing policy will be socially and economically optimal³. The model should consist of three parallel streams, of highly talented, the socially and economically backward and the others. The first two categories could be subsidized by the State and the last be asked to pay fully for their higher education. Those who cannot pay the full cost of formal education be diverted to Open University System with flexible courses. We have already successfully implemented discriminatory pricing policy in various other fields such as Health Care. Once the multi-pricing model is formally accepted, most of the resource starved problems of general higher education could be overcome for the better.

Organizational Issues

(i) Structure

In Maharashtra, there are five types of colleges, such as (i) government colleges, (ii) private colleges fully under grant in aid, (iii) Private Colleges under partial grant in aid, (iv) private colleges which are not under grant in aid but are not allowed to charge higher fees and (v) private colleges which are allowed to charge a higher fees to fully cover the cost. Such a complex organizational set up has resulted in a lot of avoidable uncertainty and confusion vis-a-vis service benefits such

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as pension, provident fund, gratuity, contributory provident fund, etc. for members of the staff. The confusion is worse confounded in institutions which are partially aided and unaided for a period of 7 or 8 years. While permitting temporarily unaided colleges, the conditions of service for the members of the staff in such colleges too could have been made clear. The denial of a recognized Provident Fund to eligible staff of unaided and partially aided institutions is not only unjust but also a negation of affiliation conditions. This is against the basic tenet of social security system for employees. In the normal course, a continuous service of two years should make any employee eligible for Provident Fund contribution. Under the prevailing conditions in Maharashtra, it now takes almost 8 years for a college started on unaided basis to offer service benefits to members of the staff. The organizational confusion has resulted in staff immobility, insecurity, and inequity. In view of the anticipated increase in the demand for admission, it is necessary to streamline and issue clear directions regarding organizational set up as well as service benefits to staff to avoid confusion⁴.

(ii) *UGC Schemes*

There are a number of UGC and Central Government Schemes intended to promote higher education through out the country. However, in view of the rigidity at the University and the State Government, a large number of colleges are unable to enjoy these facilities, though many of them come forward with project proposals. These colleges are said to be not eligible as they have not been enlisted under 2(f) and 12 (b) of the UGC Act. Different universities look at the situation differently. While most of the universities have recommended colleges to the UGC for inclusion under 2(f) of the UGC Act, the Bombay University has taken different stand which *prima facie* appears to be detrimental to the interest of infrastructural growth of and faculty improvement programmes in upcoming educational institutions. In a communication to an institution, the Registrar of University of Bombay stated: "In order to register a college under section 2(f) of the UGC Act, the college should have been included under section 12(b) of the said Act, and in order to include a college under section 12 (b), a college is required to have permanent affiliation." However, a glance through the list of colleges included under section 2(f) reveals that hundreds of them are not permanently affiliated or included under 12(b). The confusion at the university level has cost the colleges and teachers quite a lot. Teachers of such colleges are seldom called for refresher courses which are mandatory for them to draw increments after 8 years of service. The non-listed col-

leges and teachers should be given project grants, provided they give an undertaking to the effect of satisfactory and proper utilization of grants⁵.

It is a pity that "development" and "quality" improvement schemes like College Development Council(CDC) and University Leadership Programmes(ULP), initiated by the UGC as Plan-projects had to be abandoned halfway as the State Government declined to accept the continuing responsibility. In some States they are continued, while in some others, like Maharashtra, they are not. They were set up with a tacit assumption that they will be taken care of by the respective State administration once the plan period is over. The CDCs were found to be highly useful by the colleges and the teachers and could have played a critical role in improving the academic standard of colleges. There are colleges in Bombay city itself with less than 20% pass percentage for decades located in juxtaposition of institutions with over 80% results at the same examination. The CDC could have been assigned the role of improving the academic status of such institutions through a SWOT analysis. But the programmes initiated and the staff appointed had to be abandoned for want of State response.

Delay in decision process at the University, State and Central Government level be avoided. A letter or a proposal submitted needs to be responded to within a reasonable time limit. In case a reply is not received within a certain stipulated period of, say, one month, it will be presumed that the answer is in the affirmative or the proposal is approved. Such a time limit will make the machinery work with accountability and management.

(iii) *Institutional Size*

One of the most tragic problems in educational institutions in the country is "non-administration". Progressively, management at institutional level is being taken over by the University or the State, as the case may be, leaving very little room for local initiative at the institutional level. The duration policy and practice at the State level is "penny wise and pound foolish". It has led to highly unwieldy institutions as there are colleges in Bombay with nearly 10,000 students on the rolls. Institutions with more than 2500 students be bifurcated either facultywise or between Junior and Degree colleges. Multifaculty colleges should have provision for a hierarchical or line administrative structure with Vice/Deputy Principals for separate faculties, who alongwith the Heads of various departments and convenors of cocurricular units should form an Academic Committee at the college level. The committee will

prepare annual programme of action, both administrative and academic. Different colleges run by the same management could be permitted within the same complex, if feasible⁶.

(iv) Class Size

The size of the class be limited to a maximum of 60 students per subject if education is to be made meaningful. Assignments, tutorials, work study-experience be made part of the learning process. A regular student shall be required to be present in the college for at least 6 hours a day, including library use, cocurricular activities, etc. Proper record of participation in various activities be maintained for the year end evaluation. Students who cannot fulfil these requirements be made to seek admission to Open University System. In case the number of students is, say, less than 15 per batch, such departments could be amalgamated with neighbouring colleges. Students-teacher ratio should not be more than what is prescribed by the UGC. Remission of lecturers for Head of Department, Vice-Principal and chairpersons of all activity groups may be provided as an incentive⁷.

(v) Subjects

Various subjects have become traditional and less relevant in actual life and work situations in view of the rapid societal transition at the local, national and international levels. Such subjects be updated, or made interdisciplinary. For instance, subjects like Botany, Zoology, Life Science be made, technology, production, or environment oriented. Physics, chemistry and mathematics be made oriented towards industry, agriculture, services, space and defence research. Social sciences like political science, history, sociology, economics, be linked with public administration, social service, public relations, and management. Commerce, Accountancy and Economics be integrated into management, finance, marketing, export-import, trade, etc. This would serve a better purpose when the economy is developing, than delinking education from jobs. However, these subjects in their "traditional form" may be taught in a few reputed colleges, for the pursuit of those seeking pure knowledge. New colleges be given permission with new subjects only.

A large number of girl students happen not to seek formal employment after graduation. An interdisciplinary faculty "Home Management", including optional subjects like handicrafts, small agriculture-trade-industry management, first aid, health care, nutrition, etc., be introduced for this target group.

(vi) Examination

General studies be discontinued at the +2 level. Thereafter, it may be a 2-year General Degree and a

3-year Honours Degree. During the third year, a student be asked to identify one or two topics for special studies, including an assignment/dissertation, carrying 400/500 marks with 100 marks viva. Examination should be a continuous process with three components :

a) Cocurricular components	15%
b) Internal assessments	25%
c) Annual examination	60% = 100 marks

Minimum marks for passing should be 50% with 60% and 70% for second and first class respectively.

(vii) Miscellany

University and colleges are victims of internal and external pressure. No worthwhile research is coming out of Indian universities and colleges. Bringing out a Faculty Journal be made obligatory for each of the University Department, in collaboration with Board of Studies in the subject and colleges. Where the number of students is less, inter-related subjects be amalgamated for the publication of the Periodical. Teachers, students, and ex-students be persuaded to subscribe, to them which could also be available for public subscription.

National consensus and uniformity are inevitable for progress. A cadre of Indian Education Service be set up for both teachers as well as academic administrators. This will release education from bureaucracy on the one hand and encourage national integration on the other. So far we have been living on 'slogans' like the 3-Rs, 3-Hs and now the 3-Es. They need now to be translated into reality to make them relevant and meaningful for social development.

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DIGITAL TECHNOLOGY

D.R. Goel *

Kiran Jaiswal *

The globe is going digital. Now a days everything is becoming digital. The digital version of even a simple wrist watch is fast replacing its analogue counterpart. No more lessons are required for children to learn how to see time by interpreting the position of the moving hands of the watch. Direct digital display makes life simple and easy. Sophisticated digital technology holds promise for virtually complete fidelity in sound reproduction and superb picture quality in television sets. A number of products based on digital technology such as the compact disc (CD), digital audio tape (DAT), digital radio, digital television, video disc, optical reflective disc, interactive video (ITV), videotex, electronic mail, and digital paper have been developed.

Among the most popular forms of entertainment in digital technology is the compact disc. CD is the most radical change in recording technology. Audio signals stored on a CD are in high density digital format, which means that the signals recorded are an extremely accurate representation of the original audio signal. CDs have another special feature called programming. Any particular section on the disc can be selected for play (random play) and others skipped.

Compact Disc Read Only Memory (CD-ROM) is a rapidly emerging new technology for the retrieval of vast amounts of information from an optical disc. This new peripheral device allows a totally new level of functionality in the use of microcomputers. The storage capacity, low cost, and read only feature of CD-ROM bring an enormous new capability to microcomputer users — that is, information retrieval of very large reference publications. How people receive and use information in the immediate and long term future will be dramatically changed by CD-ROM.

The new developments of CDs are Read/Write CD, CD-videos, Multi-play machines, Palm-sized CDs, CD + G/M (Compact Disc plus Graphics/Musical instruments digital interface) and Portable Bookman.

The new dimension in audio entertainment is digital sound reproduction. The latest trend worldwide is inclined towards the CD system which has changed audio preferences of music-lovers. The major reason for the lack of popularity of the CD system is the dearth of CDs of light and classical Indian music.

Digital techniques in electronics are becoming supe-

rior to analogue techniques. On similar lines, radio transmission techniques are also undergoing a sea-change.

Digital techniques are widely becoming popular for application in switching and multiplexing, thus necessitating the use of a new transmission means on radio for the medium and high capacities, both for long haul applications and junction working of inter-exchanges in urban areas. Thus an extremely rapid transition from analogue to digital radio relay systems is witnessed at present.

The prominent features of digital radio are (i) Circuit quality is independent of link length, (ii) Better immunity to external interference, (iii) Better circuit quality up to threshold, (iv) Total system economy, (v) More efficient for data transmission, (vi) Better speech security, and (vii) Operational advantages.

Similarly, digital television reproduces reality to a large extent.

A videodisc is much like a standard LP (Long Playing) record, covered by a clear coating of durable, mar-resistant plastic. Because information is embedded within the disc and protected by plastic, the product is extremely rugged. A videodisc can suffer extreme abuse and still reproduce an undamaged image. The record like disc stores frames of information located in microscopic bits beneath the surface of the disc. Each frame can be thought of as a single frame of a motion picture which can be retrieved by most videodisc systems either individually to produce still pictures or in sequence to produce motion pictures.

Optical reflective systems are the apparent survivors of recent competition. This system supports interactive applications, provides impressive quality, durability and capacity, and exploits training, industrial and commercial opportunities. Optical reflective systems allow rapid and accurate frame access unavailable in capacitive systems, and the laser-read-hard disc is much more durable than either the stylus-read-capacitive disc or the floppy-format-optical-transmissive disc. In addition, the optical reflective system allows either one hour of extended play per side (constant linear velocity) for linear viewing, or thirty minutes per side (constant angular velocity) for random frame access and interactive applications.

Interactive video is defined as the presentation of

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video and audio information according to the response input made by the viewer. The presentation of images and sound is via a television monitor, which is usually part of a self-contained user-station with microcomputer, video source, and input device. The source of video can be one of several devices such as videodisc, videotape or compact disc. The response input can be achieved using one, or a combination of several devices, such as numeric keyboard, alphanumeric keyboard, touch-screen, light pen, mouse, trackball and/or voice recognition systems.

Between the viewer and the video programme lies a very important source of power — the computer. The role of the computer is of prime importance because interactive video is a combination of computer technology with video technology. Combining computer and video technology means the computer's power of control with the videodisc's (or videotape's) capacity for audio-visual and data storage. It means that the sound and pictures on a videotape are put under the control of a computer programme. When the user of the system (viewer) is included, there is then a video programme controlled by a computer programme which is controlled by a user. The computer programme acts as a link between the system user and the video programme.

Videotex is the generic term for information systems which involve the transmission of 'display' text and 'pixel' graphics and their reception on an adapted television set. Videotex was first developed as a method of low-cost information delivery into homes, to be available through the use of microcomputers and appropriate additional equipment. Broadcast videotex (teletext) differs in scope from interactive videotex (viewdata). Both are used for educational purposes. Videotex transmission is achieved either by broadcast signals or by telephone network.

The one-way nature of teletext means that the user can select information only from the limited amount being transmitted. A fixed number of pages are continuously broadcast one at a time and in sequence. The two way nature of interactive videotex (viewdata) means that the user has access to thousands of pages of information stored in several computers. These are in communication with each other but may be geographically dispersed.

Electronic mail is used here as a generic term for information systems in which plain-text messages are transmitted to a central computer for storage and later interrogation by the addressees of the message. It includes both public messaging (bulletin boards) and closed group messaging (computer conferences). The use of electronic mail requires a microcomputer to be connected to the telephone network which translates the data into a form suitable for transmission through the telephone service.

School use of on-line facilities has been concerned with finding educational applications of electronic mail and videotex systems, and with access to commercial

database systems for bibliographic or full-text searching.

Optical storage devices such as read only media, WORM (write once, read many times) media and read-write erase media categories of media differ in the precise way that write and read the system of digital dots that have been written onto the media. The latest optical technology is digital paper, a write once optical storage medium. However, digital paper differs from existing WORM media in that it is flexible and can be produced in large sheets and reels (hence the fanciful name). As a result, it can be cut, stamped, and otherwise built into a variety of products. It promises to make smaller, faster and cheaper WORM drives as available as floppy disc drives are today.

ICI's (Imperial Chemical Industries) thin flexible film or digital paper is similar to the material used in computer tapes, but data is written and optically by a laser. Since the company claims that 3MB of storage capacity on the paper costs only one penny, and takes up much less space than an equivalent amount of information on magnetic tape, this is an important consideration in the case of remote sensing satellites, which produce vast quantities of data.

The Ottawa centre will handle much of the data provided by the European Space Agency's ERS-1 satellite, which is expected to be launched early next year. It will also be receiving data from several other satellites. It has ordered five disc drives, each about the size of a large freezer, to store the mass of information received on 300mm spools of digital paper tape, each of which can hold about a terabyte (1000 gigabytes) of data. Successful use of the paper has depended on development of tape drive systems able to maintain the correct tension and speed.

So, it is evident through the above presentation that digital technology has provided very high quality of reproduction of reality in terms of audio and video stimuli. Also due to digital technology it has been possible to have very compact storage capacity for a very big volume of data/information. There is a sudden change in the world of information because digital technology realise quite high speed of communication and on live access. Through digital technology it has been possible to merge different technologies, such as, video and computer in the form of interactive video, wherein, the camera eye and computer control are very meticulously merged.

Digital technology is contributing to almost every area, namely, information, entertainment, and education. The world of information is enriched because of high storage capacity, speedy and selective retrieval in terms of display text, pixel graphics or their mix. The entertainment realm is enhanced because of true reproduction of voice and visuals having natural impact. Similarly the educational system draws a lot currently and immediately with reasonable fidelity.

Impact of Environmental Destruction on Tribal Women

Areas of Social Work Intervention

Gracious Thomas*

In a developing country like India, where three-fourth of the total population depend on agriculture, the biggest threat of the destruction of the environment, especially of biomass source is on women. The reason for this is simple. If we look at the lives of the rural households we will find that almost all their basic survival needs are biomass-based, that is, based on products obtained from plants and animals. The division of labour that is culturally accepted within the Indian family, leaves the responsibility of the collection of household needs like fuel, fodder, and water to women. With the continuing destruction of the environment and its biomass sources, women have to spend an extraordinary amount of time foraging for fuel, fodder and water in addition to household and agricultural work and caring for animals. There are almost no data which show how the time spent by women on their daily household activities is increasing and how this increase differs across different eco-climatic zones of India. But the data that are already available on the existing work burden are downright shocking. In many parts of India, women spend 14-16 hours working everyday and it does not matter whether they are young or old and whether it is a Sunday or any other holiday (Agarwal: 1985).

A study to find the impact of environmental destruction on Bhil tribal women has brought to light a number of problems that they face. The study has been carried out in Jhabua, one of the tribal districts of the State of Madhya Pradesh in Central India. The target area is hilly which is mainly inhabited by the Bhils. The Bhils are an aboriginal tribal people who live relatively isolated off the main road, scattered all over the jungle. These people live on small farms, supporting themselves by farming and forest resources. In all 183 Bhil tribal women have been interviewed.

Long Hours of Work

The present study shows that the tribal women work longer hours than men. It is found that these women contribute 52 percent of all human-hours spent in the village on agriculture and domestic work, men 30 percent and children 18 percent. Further it is found that in domestic activities alone (which include cooking, fetching water and firewood, taking care of children and animals, going to market etc.) women contribute 63 per

cent, men 27 percent and children 10 percent. Of the total time spent on cooking, the women contribute 93 percent while the men and children contribute 3 and 4 percent respectively. Again, the women from this tribal district spend 86 percent of all human hours spent on fetching water and nearly half the time spent on collecting firewood apart from spending 92 percent of the time spent on carrying food to the farm for their husbands and relatives.

In this dry, arid to semi-arid region, the situation of tribal women is particularly worse. With scanty rainfall and limited irrigation, the area surrounding the village has become vast treeless plain. Women here spend six to eight hours collecting firewood out of the total working day of 16 to 18 hours. Firewood is so scarce that even small wayside weeds are collected. Very often these tribal women spend long hours to dig out roots of trees cut long ago. In addition they walk daily 2 to 4 kms. to fetch drinking water.

Head Loaders

Head-loading is a back breaking work and brings extremely very little money. But the Bhil women do this because they cannot rely on their men to bring any cash home after a day's work. The big advantage with head-loading is that this work is generally available round the year. Among the respondents covered under the present study as many as 44 percent in the 20- 40 age group reported that they engaged themselves in head-loading for some or other time during the year. On an average they walk 12 to 14 kms. (to and fro) to collect firewood. Nearly 90 percent of them said that they are hurt by their axes while cutting wood. The tribal women are provided with no medical facilities and any illness is a liability for them. By and large majority of them are malnourished and their children are often neglected. Tribal tradition credits women with better marketing sense and bargaining compared to men as they are prepared to wait hours for a good price while men prefer quick deals. Also an independent profession like head-loading ensures women control over the income earned which otherwise would be spent by men on liquor.

Male Migration

Male migration is another major phenomenon in this tribal district which increases the work burden of women, who have not only to take care of household

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needs but also have to devote more time to family's agricultural fields. The present study shows that the ratio of time spent in collecting firewood, water and fodder is nearly three times more than the time spent on agriculture. As time for the collection of these essential items grows and as they become scarce, the traditional practice of manuring fields are being given up. The practice of using cowdung as fuel, as in other parts of the country, is gaining momentum among the Bhils in this area. This in turn reduces the extent of manuring the fields which results in the exhausting of these fragile soils. If this situation continues it will be disastrous both for the local people, namely, the Bhil tribal population and the environment.

The cities, compared with the villages, promise lighter work and higher and steadier wages. A study (CSE: 1985, p.141) from Delhi states that the migrants' average earnings over the year were two and half times more than what they could earn in rural areas. Many or most migrants see urban earnings as supplementing the rural, their urban stay as temporary, and their places of origin as their permanent homes. Thus, the migrants range from seasonal or shuttle migrant coming for a few months to the permanent settler seeking a new way of life. Whatever may be the type of migrants, ultimately the ones that are made to face the consequences of migration are the village women.

Plight of Women Cooks

Fuel wood is increasingly becoming a scarce commodity on account of indiscriminate and disproportionate felling of trees which is causing enormous problems particularly to women. The Bhil tribal women find it practicable to assemble a three stone stove. This is perhaps because it serves many needs such as cooking, providing warmth, drying out clothes as well as source of light. It also provides a social ceremonial focus (IDRC: 1979). Strong traditional habits prevent people from accepting any drastic change in their cooking arrangements and thus firewood crisis is increasing everywhere in the country.

Cent percent respondents covered under the present study cooked. Nearly eighty percent women said that they started learning to cook before the age of ten sitting by the side of their mothers while they cooked. The most commonly used fuel is wood (72 percent) followed by dung (19 percent) and leaves and other biomass products (9 percent). In some areas of Jhabua district the devastation is so complete that even walking miles to collect firewood does not help and so the tribal women are left with no option than to burn leaves. Every morning women walk to the forest and literally

sweep the ground with brooms to collect fallen leaves to take home for cooking meals. Leaves are such poor quality fuel that women are forced to shove in leaves every now and then to keep the fire going. The bundles of leaves, collected after hours of back-breaking work, disappear in cooking just one meal.

The impact of family planning — particularly tubectomy operation — causes enormous problems to women who have not only to cook but also manage the daily domestic chores. In all, 48 percent respondents had undergone tubectomy. Among them 87.5 percent complained about post-operative pains. Although they wanted to take rest, none of them could find time due to family responsibilities. Collecting firewood, leaves, water and fodder meant walking miles, stretching and stooping which caused severe pain.

A study from the Indian Institute of Management in Ahmedabad shows that five times more men than women seek treatment at primary health centres. Women do not have time to seek health care even when they are ill (Agarwal 1985). A study by the Operations Research Group (ORG) found that in Western Uttar Pradesh even pregnant women work for 14 hours a day. They do this almost till a few hours before the delivery and begin normal work 3-4 days thereafter. One woman told the ORG researchers "We are too much loaded with family chores. Hospitals, injections, etc., are too much time consuming business for us". (Khan, Ghosh and Singh N.D.).

Recommendations

Environmental degradation is a problem that concerns human beings because certain people benefit tangibly from it and others suffer silently because of socio-economic and cultural inequality existing in our society. The Indian Constitution makes it a fundamental duty of every citizen to protect the environment. Unfortunately, large majority of the population are unaware of the causes and consequences of the growing environmental degradation. Therefore, what I intend to present now is a plan of action for social workers which not only aims at conserving and protecting the environment but also at improving the quality of lives especially of women in rural India.

Awareness about Legislations on Environment

Public awareness for the preservation of environment is something which should begin not only at the grassroots level with the rural masses but also with the leaders, planners and implementers at all levels. There are number of legislations like the Environment Protec-

tion Act, the Forest Conservation Act, the Air Pollution Control Act and the Water Pollution Control Act which need to be strictly implemented. Primarily, it is the responsibility of the government agencies to implement them. Sad to say but true to fact, people are not aware about the very existence of these Acts. Given the situation where two-third of women are illiterate, it is recommended that the social workers must take initiative in starting a process to enable the public to become aware of the need for the preservation of environment and the causes and consequences of environmental degradation. Formation of social action groups and the use of various methods of mass media communication will go a long way in creating public awareness.

Proper Use of Natural Resources

India's eco-systems are numerous and diverse. It is very rich in natural resources. However, there is no systematic and planned use of the natural resources. This is causing large scale wastage of resources and environmental degradation. Therefore it is high time for the planners to take adequate steps to prevent further destruction of the eco-systems. They are so diverse that planning for each eco-system must be done differently according to the varying situation in each region. Very often the planners are the ones responsible for the country's environmental degradation. It should be clear that the time is now ripe to begin a grassroots revolution which shakes the very fundamentals of the existing exploitative and destructive use of the environmental resources and save the country from further degradation of the environment. In this stupendous task of evolving a viable plan of action, the social workers in the country must play a major role. They should become torch bearers in helping and enabling people, particularly the women from rural and tribal areas to awake them from the state of stupor, and organise themselves into groups and associations to start a process of analysing the 'what, why and how' of the existing situation of environmental degradation. Through the methods of social work, especially group work, community organisation, social research and social action, people must be organised for power, for active participation and for interdependence at various stages of planning, organising and implementing various programmes for the preservation of the eco-systems and for their utilisation.

Creating Employment Opportunities

Unemployment and/or under-employment is a major problem that the people in India are largely confronted with. It is reported that nearly 95 percent of the employed women are working in unorganised sec-

tors where they are paid meagre amount for the labour they put in. Fortunately, ecological regeneration is a very labour intensive exercise. Although under the Seventh Five Year Plan certain employment guarantee programmes were initiated particularly for the women, like the Mahila Karmasala and Nursery, such programmes failed to gain momentum due to the lack of proper orientation. It is therefore highly recommended that social workers may be involved in the process of planning and implementing such programmes in order to provide strength and vitality to such initiatives which will help the people particularly the women to find employment.

Environmental Education

Given the present situation where over two-third of the women are illiterate, environmental education has a very important role to play in influencing the rural and tribal ignorant women to awake and participate in the ecological regeneration process. Social workers must join voluntary agencies to make our people, especially the women, to become environmental conscious. It is necessary that the planners and implementers of environmental policies and programmes accept and introduce environmental education as an ongoing process. This will certainly help the people, particularly the women to become free from the present world of ig-

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Union. Apparently, the forces of nationalism and sub-nationalism have hardly subsided despite much effort. Equally, we witness with helpless revulsion the upsurge of religious intolerance whether fundamentalist, and hence violent both within and without, or just instinctively hostile only to outsiders. While our conquest of nature and even our skills of management of organisations may command respect, the same cannot be said about our social and political systems. So many social vices generally so recognised like dowry, untouchability, racial arrogance and violence towards and neglect of women seem to be impervious either to law or to education; and if such things change, as we hope they do, they change ever so slowly.

If we are impressed by the pace of change in some areas then, we have every reason to be depressed about lack of change in other areas. Indeed, in the vital areas of politics, there is deterioration not just in India but in large parts of the developing world. Even as democratic forms of government triumph in some parts of the world, there are tendencies in established democracies like India which call into question the very idea and ideal of democracy.

Happily, one must also recount that there are worthwhile things which also change very slowly despite dire prophecies from time to time. Family ties and the spirit of service remain strong in the West as well as the East despite some evidence to the contrary. Through all the suffering, ordinary men and women everywhere display a remarkable spirit of fortitude, snatching such dignity as they can in small ways and through many small gestures. You only have to witness our diminutive Adivasi women comb their lice-ridden hair and gracefully put a flower in it to realise this. The human spirit then is alive and well – and perhaps more so in

pockets of extreme deprivation.

And yet, even the fact of significant economic progress combined with enormous fortitude of those whom it has passed by has to content with the inevitable march of rising expectation egged on as it is by much improved communications. What this does psychologically is to nullify the impact of progress satisfaction at what is achieved is matched by the restlessness and even envy engendered by the better fortune of others. Restlessness often acts as a spur to effort and is not, therefore, all that undesirable. But the same cannot be said about envy, however understandable it may be. It remains thus a moot question whether even economic progress is a sure passport to happiness or to creative activity.

What we have in front of us then is a project of change as well as lack of it, of movements forward as well as backwards, of a general absence of remedies without some side-effects. What is the relevance of all this to our individual life? I submit that this prospect of change – and yet no or little change – requires us to develop a certain degree of skepticism towards everything without allowing this skepticism to degenerate into cynicism or self-centered inactivity. Yes, one has to be skeptical even about apple-pie and motherhood as the Americans might say – and certainly about religion, about reason or science, about democracy and nationalism, about economic progress and indeed about the concept of progress or happiness as such. But skepticism does not mean that all these things do not matter at all or that they can in any case be done away with and replaced by their opposites. It means only that we should not be mesmerized by high sounding words and should judge each phenomenon by its actual manifestation in real life. And this applies to the opposites as well – to disbelief as well as to belief, to

reason as well as faith, to authoritarianism as well as democracy.

We cannot be cynical or self-centered or inactive in the presence of reality if only because it is bound to engulf us in some ways. The slums will crowd in on our sheltered homes. Disease will spread. Even those who migrate to America will have to face other challenges: of racialism and of social and emotional isolation or loneliness. If you do not believe me, just go and talk to those who migrated some 20 or 25 years ago and are now in their forties and fifties. They have had their cars and videos and houses and well educated sons and daughters and even a brief spell of professional achievement. But the novelty of wealth and gadgets and even of achievement has passed. Most of them are now worried about more important things like the esteem of others in their new homes as well as the ones they have left behind and the gulf between themselves and their children which they cannot understand or accept.

To be skeptical without being inactive – or to be active without being an ideologue – is not an easy task. It requires us to be concerned about the present without any grandiose ideas about the future. Such is the vanity or inertia of human nature, however, that it has to identify itself with big causes and grand designs for the future – and for the everlasting future at that – before it can stir itself to the obvious and often humdrum tasks in front of the nose. Those with faith can perhaps believe that it is not for human beings to shape the future in any event and that it is our task only to act in the present without any regard for consequences in the future. Those with imperfect faith can be beguiled by the promises of life or salvation after death. But for those without faith, the only antidote to their arrogance and vanity is the contemplation of human experience; and I cannot urge more strongly that all of us,

including students of science and technology, must have some knowledge of the history of all people, if they are to be at ease with their own times. But the lesson of history for everyone is the same : there is no escape for anyone from the world around them; and wisdom and peace lie in being involved in it constructively without too much thought for the future.

Let me now turn to the enormous significance of the rapid change in technology. I do not need to remind this audience of the remarkable progress made in information technology, in biological sciences or in the development of newer and more useful materials. It is technological progress which is the main engine of economic growth as well as of national competitiveness. And one can be certain that further rapid strides in beneficial technology are ahead of us — be it in respect of energy resources or the preservation of the environment.

But while one cannot underestimate the enormous significance of technical progress, what is equally significant is the fact that technical progress does not spread evenly among different nations and among different groups within nations. This uneven and even highly selective spread has perverse social and economic effects in that it increases inequality in the short-run even as it increases total wealth. The resulting social tensions are one of the main reasons for the eruption of violence and even for the rise in fundamentalism of different sorts. Nations that are left behind in the race for progress which is often identified with the 'West' or with the 'Christian Civilization' react and assert their self-esteem and overcome their inferiority-complex by trying to return to their past, real or imagined; and the more unnatural and forced the attempt, the more strident and violent it becomes. In the face of growing inequality of unemployment at home, there is greater tendency to blame some minority or majority group and to seek some form of revenge on them by open violence or covert calumny

which gains credence by repetition and even more by being clothea in some progressive or emotional garb.

The reasons why technical progress tends to spread unevenly are many and largely historical but nonetheless real. They have much to do with the nature of technology which is often a voracious consumer of scarce resources of capital, skill and land and with the general scarcity as well as unequal distribution of these resources at any given time. Gandhiji used to say that he was not against technology as long as it can be brought within the grasp of the vast masses of the people. But in the nature of things, this is impossible within a short span of time — unless one can think of completely totalitarian and communistic form of organisation. That indeed was one of the attractions of the communist ideology. But we know now what that ideology has produced in actual practice.

As a practical proposition, our only choice is to suppress or handicap the application of a new and more efficient technology or to allow technical progress to proceed unhindered even if unevenly and with some undesirable side-effects which might then be dealt with as best as one can by social and economic policy. I am afraid the policy of suppressing or handicapping technical progress in the interest of a more even or orderly progress is hardly sustainable considering the enormous wealth-creating capacity of technical progress which sooner or later benefits everybody. In any case, it is not feasible except at home which means that any country following such a policy will simply rule itself out of world markets.

It has unfortunately also to be accepted that the undesirable side effects of unhindered technical progress cannot be fully counteracted in the short-run. If large-scale unemployment results, we may have severance pays and retraining facilities and even unemployment benefits and general employment schemes. But there will never be resources enough to

remove all hardships.

To some extent, we can soften the blow or prolong the life-span of existing technologies by improvements in them — as has been the case with handicrafts and handlooms in India. We can also devise and research for technologies which are scale-neutral and can be adopted even on a small scale — as is the case with the agricultural technologies popularised as the "Green Revolution". Some of the newer technologies like the microchips and microbiology are also not very resource-intensive. Progress along similar lines can greatly reduce the disadvantage of poor nations or smaller and weaker producers.

This is the main reason why even poor countries have to develop their own scientific and technological capability. But the difference in current wealth and capability will count. And all in all, we simply cannot assume away the fact that if technical progress is not to be retarded, elaborate policies of a remedial nature will be necessary; but even then, some people — and some nations — will suffer at least in the short-run. The juggernaut of technical progress move on — but not without trampling some groups underneath. In the past, mass migration provided some relief from this inevitable phenomenon. But in the modern world of unequal national resources and unequal power surrounded by walls of restrictive legislation, this is no longer possible.

I cannot spell out here all the possible lessons for a country like India of this phenomenon of rapid but unequal spread of technology. One lesson, however, is that it demands a much higher priority for education at all levels and with the highest standards of excellence even in countries generally poor. Given the nature of modern technology, even universal primary education is not sufficient to absorb it extensively. We have now to aim at universal secondary education — and that too of a high standard — if we are to exploit modern technology on a

large scale and produce sufficient numbers of high-quality students for our universities and technological institutes. We need facilities for research of the highest calibre because only we can give priority to research which relates to our particular needs. Our boast of producing the third largest number of scientists in the world is an empty one if only because not even one-thirtieth of the technologies we adopt in the country are developed here. The reason is the poor quality of the average product of our educational system which is bound to drag us down in the race for economic progress.

The countries of the world are coming together as a result of the vast changes under way and that it is not possible for any country to isolate itself from the world. Here again, the substantial truth of this statement is obvious and there is now greater recognition in India, for example, that in our trade policy, we have been too protective and not sufficiently aware of the opportunities of gainful trade with the rest of the world. Even culturally, we know, we cannot shut ourselves from the trends in the U.S. or in Japan. But once again, we have to look a little more carefully at the statement that the world is coming together and that we have to integrate ourselves into this emerging "One World".

While the world as a whole is coming together, there is also a tendency for regional blocs in the name of regional economic cooperation, i.e. for the world to be divided into new competing blocs—not the Soviet and the American military blocs anymore, but a European economic bloc poised against an American bloc comprising the U.S., Canada, Mexico, Israel and perhaps much of Central and South America and the Caribbean and a Pacific bloc consisting of Japan and the Far East and possibly including China as well as countries right at our doorstep like Burma, Nepal and Sri Lanka. One disturbing fact about these regional groupings is that India is not a part of any of them—and no one is anxious to have us either.

Consider also the fact that while

the cold war might have receded and even ended, there are unresolved regional conflicts—and the most serious among them are those that involve our own country. Surely, we have to ask: how long shall our relations remain strained with Pakistan, China and even Sri Lanka involving us in much wasteful expenditure and denying us any real possibility of regional economic cooperation? Border problems with China must be solved sooner or later; and perhaps the time is now ripe when China feels a little isolated and not so anxious to spend more on defence. The world is moving on toward mutual accommodation, compromise and peace—and we too have to do the same with Pakistan on Kashmir and with China on the delineation of borders. And with the same spirit of urgency as well as give and take, we have to tackle the problems of sharing water and power resources with Nepal and Bangladesh. While we grieve at the tragic assassination of Rajiv Gandhi, we have surely to ask what business it is of ours to allow Tamil militants any kind of shelter or heaven on our soil, much less to aid their militancy? My purpose once again in raising these larger questions on this occasion is to urge that students of technology, representing as they do one of our most precious national assets, cannot withdraw into an ivory tower and remain indifferent to the larger realities that confront our country today.

We all have to play our part at this hour of national trial because we can no longer look forward to any sympathy—let alone support—from the richer parts of the world in the solution of our problem. While the world is coming together, there is in my opinion, a decline in the spirit of international cooperation. Whatever may be the truth of this statement generally, it is certainly true as far as India is concerned. It is not just that there is aid-fatigue or that the commercial banks no longer consider India a good credit risk. It is not even that doors are being closed against our students—certainly in the U.K. and Canada and Australia, and to some extent even

in the U.S. It is not even that there is pressure on us to yield in some unacceptable ways as in the case of patent rights or trade. All this is there. But what is more deplorable is that we have dissipated our moral inheritance—the inheritance we received from Gandhiji and Panditji and from our bold and inspiring experiment of evolving secular and democratic society with social justice as the third pillar, if you like, in our national emblem. Today all those pillars are shaky; and there is no longer sympathy or respect for our country which, often in the past, led others to give us the benefit of doubt. This too is a fact of life which we have to accept and not translate into chauvinism or suspicion of everything foreign. It is only if we reserve the recent ugly trends in our national life that we will survive as an honoured member of the international community.

It is true that there is a trend now everywhere towards less government intervention, lower taxes and lower public expenditures, less public ownership, greater emphasis on individual responsibility and less reliance on the exchequer for ameliorating individual hardships. More generally, socialism is on the retreat and capitalism with a humane face is the flavour of the month. There is much in this recent thinking and re-evaluation which is relevant to India as well. But let us remember that capitalism can and must have a humane face in fact as well as in rhetoric; that to some extent, capitalism and socialism can and must coexist; that in a country like India, we may need a reallocation of public expenditures but we cannot put a ceiling on them or on taxation when there are so many unfulfilled needs which can be met only by community action. While socialism may be receding, social justice is even more important in the current context; and we can blindly imitate the U.S. or the U.K. only at our peril.

Refresher Course in Commerce

The Academic Staff College of Himachal Pradesh University conducted a Refresher Course in Commerce on September 5-25, 1991. In this 3-week programme, the teachers from eight universities of the country participated. Inaugurating the programme Prof. K.C. Malhotra, the Vice-Chancellor of Himachal Pradesh University said that the community expected teachers to assume the role of leadership in coping with the problems the society was confronting and linking the education with the national aspirations. The teachers have to imbibe in their personalities a sense of patriotism, an attitude of entrepreneurship, an understanding about their surroundings and an aroma of virtues which transform people into an integrated and a prosperous society, he added. Prof. Malhotra cautioned the teachers about the depletion of their role and the apprehension of the society undermining their relevance in the education system in particular and society in general. Refresher Courses, he opined, were meant to broaden the outlook of the teachers, update their knowledge in the concerned subjects and provide an atmosphere for pondering over the adequacy of course contents, research and extension in a particular stream of knowledge. He further added that despite numerous environmental constraints, the teachers could play a crucial role in managing the affairs of education effectively provided they were committed to the cause.

The thrust area of the programme was managerial perspectives in Commerce Educa-

tion. In all 40 topics including Strategic Management, Globalisation, University Management, Quality Circles, Comparative Management, Rural Marketing, Consumerism, Stress Management, Hospital Management, Voluntary Organisations' Management etc. were covered in the programme. Fifteen Resource Persons including Prof. S. Neelmegham (Delhi University), Prof. R.S. Dwivedi (Kurukshetra University), Prof. J.L. Rastogi and Prof. S.P. Singh (Panjab University) interacted with the participants.

Special emphasis was laid on fruitful interaction between the professionals such as Chartered Accountants, Bankers, Bureaucrats, Managers and the teachers. Many topics were covered through Case Studies, Business Games, Simulation Exercises, Video Cassettes, Workshops etc.

Dr. Deepak Sood, Hony. Director, Institute of Vocational Studies and Dr. Yoginder Verma, Director, Academic Staff College, were the members of the course team which introduced certain new techniques such as brain storming, brains trust, think tank and business games for facilitating better interaction. Each participant was motivated to participate in the proceedings and management of the programme. Monitoring and evaluation was a continuous exercise in which every participant and the course team participated.

Delivering the Valedictory Address Prof. K.C. Malhotra, Vice-Chancellor, called on the teachers

to put the learned techniques and knowledge into practice. He expressed a hope for positive transformation in the education system as a result of trained, knowledgeable and dedicated teachers. Prof. Mohinder Sharma, Dean, Faculty of Commerce & Management Studies, said that the best management emerged out of experience and therefore the teachers should learn to re-construct their experiences and transplant them in the society through their professional roles.

Economic Consequences of Devaluation

The Faculty of Advanced Studies in Commerce, Business & Industrial Management, Kanpur University, recently organised a seminar on "Economic Consequences of Devaluation".

In his introductory remarks Prof. A.P. Gupta, Dean of the Faculty, explained the need for organising the seminar on such a sensitive topic which was going to affect the economy of the country for many years to come.

The topics debated at the seminar included (i) How would the devaluation help increase our exports when our products are less competitive in the world markets? They are not only costly but also poor in quality; the technology used is second hand; packing is faulty and there is inordinate delay in the delivery schedules; (ii) How would we be able to restrict our imports when 80 percent of them consist of crude oil, capital goods, components and raw materials? These items are regarded as essential and

can be curtailed at the cost of economic growth; (iii) What would be the impact of devaluation on Balance of Payments position particularly when repayments of our foreign debts and their servicing would be costlier?; (iv) What would be the impact of devaluation on general economy of the country?; and (v) What would be the consequences of devaluation in the near future?

Mrs. Sushila Rohtagi, former Union Minister, who was the chief guest, dwelt at length on the factors responsible for the devaluation, including the political instability in the recent past. She also recalled the strong position of the Indian economy in the early seventies. In a different vein, Mrs. Rohtagi stressed upon the need to avoid "devaluation of values" in the academic environment of the country.

Dr.(Mrs) Hemlata Swaroop, former Vice-Chancellor, in her presidential address, vehemently opposed the devaluation of the rupee and called for the need for a discussion on the choice between the "IMF-Model" and the "Nehru-Mahalanobis Model" for the economy.

Distinguished experts who presented their papers at the seminar, included Dr. R.L.Varshnay, former Director of Indian Institute of Foreign Trade, New Delhi, Dr. S Bhashyam, Delhi School of Economics; Dr. R.S. Tiwari, Giri Institute of Development Studies, Lucknow; Dr. B.K.Nigam and Dr. Mukesh Srivastava, Lucknow University; Prof A.P.Gupta, Dr. S.K. Srivastava, Dr. D.S. Awasthi, Dr. S.P. Dixit, Dr. C.B. Singh and Dr. K. N. Tandon of Kanpur University.

Ethics & Freedom of the Press

Justice R.S. Sarkaria, Chairman, Press Council of India, said that the

guidelines of the Press Council for coverage of communal and caste disturbances should be observed by the Press to curb the communal virus spreading across the country. He was delivering the keynote address at a symposium on "Ethics and Freedom of the Press in India", organised by the Department of Communication and Journalism, Osmania University.

"While there cannot be ethics without freedom of the Press, there are instances where editors have used freedom of Press as a license to write against public servants and individuals, bordering on defamation", he said and added that, such editors by not publishing grievances and rejoinders were not practising ethical journalism.

Participating in the symposium Mr. K. Vikram Rao, President, Indian Federation of Working Journalists (IFWJ) said that the Press was facing pressure from the management, politicians, government and terrorists and that pressurising the Press was a self-defeating exercise.

Mr. Sainen Chatterjee, member of the Press Council said that journalists should respect their news sources and keep the trust of the sources which is an ethic now being neglected.

Mr. S.V. Jayasheela Rao, another member of the Press Council, doubted whether the atmosphere was conducive to follow ethics. He exhorted media people not to yield to pressures.

Mr. M.Y. Dodhankar, editor, Hitavada, wondered for whom the Press freedom was meant — for the owner, the journalist or the reader? He visualised the future of the Press with the small and regional newspapers.

Prof K. Madhusudan Reddy, Principal, University College of Arts and Social Sciences, Osmania University, who presided over the inaugural session, said that while journalists berated lack of ethics in public officials, the journalists themselves disregarded professional ethics.

Prof S. Bashiruddin, Head, Department of Communication & Journalism, Osmania University, said that the department which has a Master's level course will soon introduce a research-based M.Phil course as it has received the UGC's Special Assistance Programme grant, the first such journalism department in the country to get this recognition.

Microelectronic Modules Technology Trends for Computers & Telecommunications

The 7th Annual Conference of the International Society for Hybrid Microelectronics, in association with MICROTRONICA INDIA '92, will be held at Bangalore on February 25-28, 1992. The focus would be on Microelectronic Modules Technology Trends for Computers & Telecommunications.

The aim of this Conference is to discuss in depth the latest trends in microelectronics, and identify those items suitable for manufacture in India, especially for application in computers and telecommunication equipment. As most of the present day requirements of microelectronic modules are imported in the country, the Conference will highlight the need for industries to come together and work towards building an indigenous microelectronics development and production base. Although there are several microelectronics

facilities available in the country, they are yet unable to effectively deliver the requirements. The Conference will aim at finding solutions to making these facilities productive, by pooling the knowledge and skills that are already available in our Universities, Research Institutions and Industry. It is hoped that the Conference will help to stimulate rapid progress in microelectronic product development in the country.

Further details may be had for Smt. Lilly Vasanthini, Secretary, Organising Committee, Manager, Material Management Group, Centre for Development of Tele-matics, 71/1, Millers Road, Bangalore - 560052.

Structural Response to Ground Vibrations

The Council of Scientific & Industrial Research, New Delhi, has sanctioned the research project "Study of Structural Responses to Ground Vibration in Mining Areas due to Blasting in Mines" to the Kothagudem School of Mines, Osmania University, Kothagudem. A sum of Rs. 5 lakhs, spread over in 3 years, has been provided for the project.

The broad objectives of the study include : (i) Study of dynamics of ground vibrations in some typical mining locations in Godavari Valley Coalfield; (ii) Study the response from different categories of structure in and around mining vicinities; and (iii) Development of safe and practical criteria for special blast design.

IFLA Gold Medal for Prof. Mangla

Professor P.B. Mangla, ex-Head of the Department of Library and

Information Science, University of Delhi, has been honoured with the prestigious IFLA Gold Medal and a certificate at the 57th Conference of the International Federation of Library Association and Institutions (IFLA) held at Moscow recently. The gold medal and the certificate have been awarded in recognition of his innovative and outstanding contribution to the furtherance of national and interna-

tional librarianship during his term of service on IFLA's Executive Board, 1985-91 and as its Vice-President, 1987-91.

Professor Mangla is the first Indian to be honoured with this award by the IFLA which has its headquarter at the Hague and is the largest and oldest professional organisation at the international level in the field of Library & Information Science and Services.

News from Agricultural Universities

PAU Kisan Mela at Bathinda

A one-day Kisan Mela was recently organised at the Bathinda Regional Research Station of the Punjab Agricultural University. At the Mela more than 6,000 farmers and farm women from the South Western districts of Punjab were acquainted with the latest research findings of the University in respect of rabi crops.

Addressing the farmers during the technical session Dr. Khem Singh Gill, Vice-Chancellor of the PAU, said that on account of intensive wheat rice crop rotation the soil was facing deficiency of micro nutrients resulting in low yields. He disclosed that an ultra modern computerized laboratory had been established at this station which would enable the scientists to make specific recommendations to the farmers about the application of correct type of fertilizers. The Vice-Chancellor informed that an animal welfare centre would also be set up at this centre to educate the farmers about the care and maintenance of farm animals. A store to sell seeds and farm literature would also be set up on this station.

Dr. Gill said that teams of University scientists had been deputed to survey the appearance of

heliethis (American Sundi) in cotton and educate the farmers about its control through integrated pest management. The Vice-Chancellor cautioned the farmers against indiscriminate use of insecticides as those were injurious for human and animal health and also caused pollution.

Dr. A.S. Khehra, Director of Research of the PAU, disclosed that some new varieties of sugarcane, cotton, paddy, tomato, papaya and ginger were under trial. He said that new sugarcane varieties were resistant to red rot disease. Work on the development of hybrid seeds was in progress.

Dr. G.S. Gill, Director of Extension Education of the PAU, said that for the first time field demonstrations had been arranged on this research station to educate the farmers about the cultivation and care of coming rabi crops. Dr. Gill pleaded for the adoption of diversification of agriculture and advised the farmers to take up subsidiary occupations like dairy farming, poultry farming, rabbit farming, fruit and vegetable cultivation to supplement their income.

IRRI Chief visits Kapurthala

Dr. Klaus Lampe, Director-General, International Rice Research Institute, Manila, Philippines recently visited the Regional Rice Research Institute, Kapurthala. Addressing the farmers he said that the International Rice Research Institute (IRRI) could help the Punjabi farmers in mechanising, transplanting and threshing of rice which were considered to be the most tedious jobs.

Dr. Lampe further said that mechanisation of these operations would not only save the labour but would also increase the yield and quality of rice. He complimented the farmers of Punjab for successful growing of rice crop. He emphasised that there was further scope to increase the yield which was very essential to provide food to hungry millions who at present were unable to get the same. He invited Punjabi farmers and entrepreneurs to visit IRRI to get the latest technology in rice cultivation.

On this occasion, Dr. Gurdev Singh Khush, Principal Plant Breeder at the IRRI, Manila disclosed that research work on high-yielding varieties of basmati rice and hybrid rice was at advanced stage and there is every possibility that the Punjabi farmers would be able to get new varieties within few years.

Dr. Khem Singh Gill, Vice-Chancellor, PAU, who presided, asked the farmers to see the new hybrid varieties at the farm which had a potential of 25 percent more yield. He also indicated that PAU was able to develop another variety of rice resistant to BLB disease which would be given to the farmers next year.

Mr A.R.Talwar, Deputy Commissioner, Kapurthala appreciated the significant role being played by the PAU in maximising foodgrain production. The farmers showed keen interest in the new varieties of rice being developed at the station.

New Undergraduate Laboratory at PAU

Inaugurating a newly established Undergraduate Practical Instruction Laboratory in the Deptt. of Agronomy of the Punjab Agricultural University, Dr. Khem Singh Gill, Vice-Chancellor, said that more funds would be allocated to modernize the existing research laboratories in all the colleges of the

University. He disclosed that a Soil Health Clinic would also be started in this University to conduct research on the problems of soil. Dr. Gill advised the teachers to teach their students with a missionary zeal to produce best teachers, researchers and extension workers capable of disseminating the new farm technology to the farmers effectively. Dr. Gill advised the teachers to have a thorough knowledge about the working and operating of new communication devices in their teaching work. He said that two new departments namely Department of Sugar Technology and the Department of Sugarcane Engg., had been established to provide trained manpower to the sugar industry.

News from Abroad

Educators for World Peace to Meet in Malta

The sixth World Congress of the International Association of Educators for World Peace (IAEWP) is scheduled to take place in Malta on November 25-30, 1992.

The World Congress will consist of three concurrent series of sessions. These sessions will deal with: 1) Social Welfare, 2) Health Care, 3) Educational Needs.

The session on Social Welfare will deal with such topics as crime trends and crime prevention strategies, justice and human rights, and the moral legality of war as a means to solve human conflicts.

The session on Health Care will deal with adequate nutrition and world hunger, hazards of nuclear

and toxic wastes, water and air pollution, mental health and the role of psychiatry, as well as the constructive development of the Earth's natural resources.

The session on Educational Needs will deal with curriculum techniques, supervision, teaching methods, administrative skills and the development of the human potential as advocated in peace education studies.

Further details regarding participation in the World Congress can be had from Dr. Surya Nath Prasad, World President & International Coordinator, Janata College of Education P.O. Box - 113, Chandrapur - 442401, Maharashtra, India.

Teachers — Past & Present

Prof. N. Venkataiah's article on Role and Responsibility of Teachers (*University News* 2 September 1991) is excellent. He has set high ideals before the teaching community and asked the teachers to follow the standard or norms laid down by the past generation of teachers. One would agree with him when he says that "a teacher should possess scholarship, a sense of humour, cooperation, spirit of service (and that of inquiry), dependability of character,.... emotional stability, leadership, open mindedness, rationalism, determination, impartiality, sobriety and self esteem etc". Quoting Rabindranath Tagore very aptly, the writer says "A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame".

There is no denying the fact that the present teacher has deviated from the ideals laid down by his predecessors. But it must equally be borne in mind that the present generation teacher is a product of a free country wedded to the ideal of freedom. The present teacher is obviously affected by freedom guaranteed under our constitution. The past teacher was, no doubt, devoted to teaching and reading. The new generation teacher besides keeping the high norms of the profession is also affected by demonstrations and movements found among other professionals for their rights. This has virtually shaken the resigned and single-mindedness of approach to reading and teaching of the present teacher.

Secondly, the present day teacher has been virtually cut off from the private management which in the past, in many cases, remained individually in contact with the teachers. The teachers were linked with the members of the manage-

ment, and enlightened management employed enlightened teachers by offering special benefits, as they also, sometimes, exploited teachers.

With paymastership in the hand of Governments, the teacher has found himself vis-a-vis vast impersonal bodies called Governments. This has given rise to the idea of Associations and Unions. Teachers are seen staging marches for their salaries, working conditions, workload, library facility, leave travel concession etc. Peaceful demonstrations and marches are part of democratic life, and teachers are no exception when they resort to this democratic method like other citizens.

It's true that unionism has resulted to a certain extent, in politicising of teachers, and

teachers have tended to be politicians. Political ideology and doctrine have also got hold of some teachers. Teachers resort to mass causal leave and long strikes which cannot always be defended. But if our Governments are sensitive to teachers' problems, and if they periodically review the teachers' cases in regard to salaries and other things, the extreme measures sometime resorted to by the teachers can be avoided. But in a system like ours and as the Biblical axiom goes "unless you knock, the doors are not opened". This however does not belittle or replace the conscience awakening work assigned to the teacher, whether past or present.

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The Nucleus of University Life

Prof. K. Venkata Reddy in his 'The Nucleus of University Life' (*University News* 26th August 1991) has emphasised a very vital but at the same time much neglected aspect of higher education in our country. Our system of higher education, is so much weighed in favour of the formal that we almost neglect the informal aspect of it. Thus in our reckoning, the mutual communication between students, their hostel life, in fact much of their life outside the classroom carries little value and hence is least researched and discussed by our academics in the various fora. This is probably because we as teachers are least bothered about the development of the personalities of our students.

Therefore Prof. Reddy deserves our gratitude for having drawn our attention to this much neglected aspect of our higher education.

Some years ago I had read an

excellent book on the problems of college going students of Maharashtra. In an article published in that book the ex-Vice-Chancellor of Pune University, Dr. Devadatta Dhabolkar, had observed that during his college days — and he was a student of Elphinstone College he had paid scant regard to attendance of college lectures and did not find them of much use as far as his studies were concerned. However the valuable discussions he had had with the inmates of his hostel, had played a very important role in shaping his personality and widening his mental horizon.

There might be many more scholars and men in public life who have had similar experiences. A careful analysis of all such cases could yield very valuable insights into the impact of non-formal aspect of education on the development of human personality.

A. L. Deshpande

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CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
November 10-12, 1991	Seminar on Ancient Indian Mathematics	To focus attention on different aspects and ideas about ancient Indian Mathematics.	Willington College, Sangli	Dr. S. R. Kulkarni, Local Secretary, 5th SUMS Annual Conference, Dept. of Maths. Willington College, Sangli-416 415
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004
March 9-13, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair - 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on higher education. Among the topics prominently represented are educational sociology, educational planning, educational administration, teaching & teachers' training, examinations, economics of education and country studies. Developing fields of adult education, continuing education and distance education, and educational technology are also well stocked.

The library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of higher education. Files of annual reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to the AIU Library'.

The library receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly our column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The library is steadily building up a collection of audio and video cassettes on matters educational and maintains a well appointed Audio-Visual Room equipped with a double deck audio cassette recorder, a VCR and a colour TV monitor, and an overhead projector.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

HUMANITIES

Philosophy

1. Chattopadhyay, Pradip. *A society in the thought of Marx and Nimbarka*. Burdwan. Dr Amarnath Bhattacharyya, Reader, Department of Philosophy, University of Burdwan, Burdwan.
2. Sharma, Chandrakanta. *A study of psychoanalytic conception of religion*. Gauhati. Dr D K Chakravarty, Prof, Department of Philosophy, Gauhati University, Guwahati.
3. Singh, Loitanthem Naobi. *A critical study of scepticism and its role in modern philosophy*. Gauhati. Dr S Shyamkishor Singh, Senior Fellow and Head, Department of Philosophy, Manipur University, Imphal.
4. Sujatha, K Mary. *Historical perspectives of Indian educational philosophies*. Andhra.

Language & Literature

English

1. Barche, Akhilesh. *Autobiography of Pt Jawaharlal Nehru: A study*. Vikram. Dr S R Jhulka, Prof, Department of English, Madhav

College, Ujjain.

2. Deshpande, Vijaya Govindrao. *A study of the novels of George Orwell in the light of his project*. Nagpur. Dr J P Paranjpe, Department of English, Nagpur University, Nagpur.

3. Joseph, S Mark. *The American novels of Vladimir Nabokov: A study of their relevance to moment milieu and race*. Madurai.

4. Kalyani, P K. *Mark Twain and R K Narayan: An analogical study*. Madurai.

5. Khurana, Kanwal Kumar. *Treatment of marital discord in Indian novel in English*. Kurukshetra.

Sanskrit

1. Baldev Raj. *Shradh prakriya: Sutra sahitya ke sandarbh mein*. HP.

2. Chaturvedi, Pradeep Kumar. *Kaviratna Shri Manmadhav-racharya virchit Dayanand Digvijaya Mahakavya ka samalochnatmak adhyayan*. Vikram. Dr B L Rajpurohit, Sandipani Mahavidyalaya, Ujjain.

3. Kantimay Kumar. *Vrindavanadasa and transcendental aes-*

theftics and Sanskrit poetics. Calcutta.

4. Lakshminarasimham, Sristi. *Panineeeye Atidesana Manushheelanama*. Andhra.

5. Leelamani, C. *A critical study of Ayyappa Diksita's Chrasimamasa*. Calicut. Dr C Rajendran, Department of Sanskrit, University of Calicut, Calicut.

6. Vidyarthi, Ganga Prasad. *Yajurveda mein lok jeewan*. Durgawati. Dr M L Purohit, Department of Sanskrit, Rani Durgawati Vishwavidyalaya, Jabalpur.

Punjabi

1. Gurmail Kaur. *Mahwe dian alahuniyan da sampadan ate loknayik adhyayan*. Punjabi. Dr Balwinder Kaur Brar, Department of Punjabi, Punjabi University, Patiala.

2. Harminder Kaur. *Punjabi lok geetan de sanskritak adhiyan*. Kurukshetra.

Hindi

1. Bairarwal, Fatima. *Tulsi kavya mein maryadavad*. Vikram. Dr Shivasahaya Pathak, Head, Department of Hindi, Vikram University, Ujjain.

2. Gupta, Prabha. *Kabir kee ulatbasiyon ka vishleshnatmak adhyayan*. HP.

3. Nautiyal, Kumudini. *Upanyaskar Bhagwati Charan Verma ke nari patra*. Nagpur. Dr Durgashankar Mishra, Prof and Head, Department of Hindi, P W S Arts and Commerce College, Nagpur.

4. Sharma, Hem Raj. *Himachal kee Hindi kavita kee samvedana*. HP.

5. Sharma, Prabhakar. *Hazari Prasad Dwivedi ke sahitya mein chintan ke vividh ayam*. Vikram. Dr Pawan Kumar Mishra, Udyan Marg, Kothi Road, Ujjain.

6. Sharma, Rani. *Sattarottari Hindi kavya kee vishishtayen aur upalabdhyan*. Bangalore. Dr Mithali Bhattacharjee, Department of Hindi, Bangalore University, Bangalore.

7. Sharma, Shanta. *Hindi ke pramukh laghu upanyas: Kathya evam shilpa, 1970-85*. Punjabi. Dr Pushp Pal Singh, Lecturer, Department of Hindi, Punjabi University, Patiala.

8. Surinder Kumar. *Sathottari kavita mein rajnaitik swar: Dhumil, Dushyant, Jagurhi, Sarveshwar Dayal Saxena ke sandarbhi mein*. Punjabi. Dr B M Sharma, Reader, Department of Hindi, Punjabi University, Patiala.

9. Varghese, Aleyamma. *Amritlal Nagar ke upanyason ka vishleshhanatmak adhyayan*. CUST. Dr L Suneetha Bai, Reader, Department of Hindi, Cochin University of Science and Technology, Kochi.

10. Verma, Samriti. *Yashpal ke katha sahitya mein nari patra: Samajik paripekshya mein*. HP.

Bengali

1. Das, Dipali. *Madhusudaner kavi-bhasa*. Calcutta.

2. Gangopadhyay, Hiranmoy. *Kamal Kumar Majumdar: Jiban-O-shilpa*. Burdwan. Dr Samita Chakraborti, Reader, Department of Bengali, University of Burdwan, Burdwan.

Oriya

1. Das, Padmasree. *Gita Gorinda Chandra: Ek adhyayan*. Uttkal.

Persian

1. Mohammad Faique. *A critical study of modern Persian drama, 1906 upto 1979*. Visva-Bharati. Dr H M Tahir Ali, Department of Arabic, Persian and Islamic Studies, Visva-Bharati, Santiniketan.

2. Mohd Jamil. *Abdul Halim Sharar kee gher tarikhi novel nigari*. Punjabi. Dr Amarwant Singh, Reader, Navab Sher Khan Institute of Advanced Studies in Persian, Urdu and Arabic, Malerkotla.

3. Rafique Anwar. *A history of Quadriya order in West Bengal, from 1180 A H / 1766 A D to 1372 A H / 1953 A D*. Calcutta.

Arabic

1. Vazecrunnisa. *Hadith literature in India during the tenth century Hijra with special reference to Ali-Al-Muttaqui as a traditionist*. Osmania.

Tamil

1. Ganesan, P C. *Kavingar puthanevi a Subramanianav's pataipillakiyangal oru ovyu*. Madurai.

2. Ponmathi, N. *Perung Kathav kallum samuthaiyam*. Madurai.

3. Rajakumari, V R. *Indhumathi Sivasankar navalkalil magaleav nalai*. Madurai.

4. Snanasambandan, G. *Arasan Shanmuganar's contribution to Tamil*. Madurai.

5. Thanalakshmi, E. *Pathittam palthu ovyu*. Madurai.

6. Vijayasimhan, Kanniha. *Makuttata kalaiyil samuthayamum panpadum*. Madurai.

Geography

1. Laxmaiah, B. *Urban scheduled castes population in A P: A study in social geography*. Osmania.

2. Ray, Ranjana. *Soil characteristics and land use in reclaimed Sundarbans, West Bengal*. Calcutta.

History

1. Chattopadhyay, Berun Kumar. *Guhila rule in Mewar. Burdwan*. Prof Bhaskar Chatterjee, Department of History, University of Burdwan, Burdwan.

2. Kandasamy, V. *The role of Madurai in the Indian National Movement, 1914-1947*. Madurai.

3. Nayak, Utpala. *The position of woman in Orissa: A historical perspective, from the earliest times to the present*. Kurukshetra.

To Our Readers

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

CLASSIFIED ADVERTISEMENTS

BUNDELKHAND ENGINEERING COLLEGE, JHANSI

Advert. No. 4/91

Bundelkhand Engineering College, Jhansi has been established by U.P. Government to impart Engineering Education at B.E. and higher levels. It is spread over an area of about 240 acres of land and is being developed as a residential institution with most modern equipments and facilities for research work.

The following vacancies are to be filled immediately :

(A) PROFESSOR : 1 POST

(Electronics & Instrumentation Engineering)

Scale of Pay : Rs. 4500-150-5700-200-7300

Qualification & Experience

(a) Ph.D. with First Class Degree at Bachelor's or Master's level in above branch of Engineering/Technology.

(b) 10 years' experience in Industry/Teaching/Research out of which at least 5 years must be at the level of Reader or equivalent.

NOTE : Candidates from Industry/Profession with recognised professional work of high standard recognised at National/International level equivalent to Doctorate would also be eligible.

(B) READER : 1 POST

(Computer Science & Engineering)

Scale of Pay : Rs. 3700-125-4950-150-5700

Qualification & Experience

(a) First Class Master's Degree in Computer Science/Engineering/Technology.

(b) 5 years experience in Teaching/Industry/Research at appropriate level.

NOTE: Candidates from Industry Profession with recognised Professional work equivalent to Master's Degree in Engineering/Technology would also be eligible.

(C) SYSTEM MANAGER/ENGINEER : 1 POST

(Computer Science & Engineering)

Scale of Pay : Rs. 3000-100-3500-125-4500

Qualification & Experience

First Class Master's Degree in Computer Science with specialization in Software Engineering and relevant experience.

or

First Class Master's Degree in Physics with specialization in Electronics/Telecommunication and atleast one year experience in development of software in any recognised Computer Institute/Or-

ganization.

(D) LECTURER: 1 POST

(Computer Science & Engineering)

Scale of Pay : Rs. 2200-75-2800-100-4000

Qualification : First Class Bachelor's Degree in Computer Science/Engineering/Technology.

Desirable: M.E./M.Tech. in Computer Science/Engineering/Technology.

(E) DEPUTY REGISTRAR : 1 POST

Scale of Pay : Rs. 2200-75-2800-100-4000

Qualification & Experience

Graduate with 5 years relevant experience at appropriate level.

Desirable : Degree in Law or M.B.A. from a recognised Institute/University.

NOTE: The qualification and experience prescribed above are the minimum and mere possession of the same may not entitle any candidate to be called for interview.

The Posts are temporary at present but likely to continue and made permanent. All Posts carry dearness and other allowances as per U.P. Govt. Rules. The candidates should submit their bio-data on plain paper alongwith the certificates and an IPO/Bank Draft for Rs. 20/- payable to Bundelkhand Engineering College, Jhansi. Candidates of Scheduled Caste/Scheduled Tribe should attach the IPO/Bank Draft for Rs.5/-. Candidates employed elsewhere should send their applications through their employers. The applications should reach the office of the undersigned latest by 21 Oct., 1991.

Dr. R.S.Nirjar
PRINCIPAL

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCE AND TECHNOLOGY TRIVANDRUM-11

Advt. No. 28/Sctimst/91

Dated 25-9-1991

(An Institute of National Importance under Government of India)

Invites applications from Indian Nationals for the following posts.

1. Associate Prof of Cardiology
2. Assistant Professor of Neurology
3. Assistant Professor of Anaesthesia
4. Scientist 'D'

5. Blood Transfusion Officer

6. Scientist 'C' (Laser)

7. Scientist 'B'/Engineer 'B'

8. Purchase Officer

9. Accounts Officer Gr.I.

Post Scale of pay

1	Rs.4100-125-4850-150-5300
2,3,& 4	Rs.3500-125-4500
5 & 6	Rs.3000-100-3500-125-4500
7.	Rs.2200-75-2800-EB-100-4000
8.	Rs.2000-60-2300-EB-75-3200-100-3500
9.	Rs.2375-75-3200-EB-100-3500

Maximum age limit as on — 31-10-1991

Post -1	:	45 yrs.
Post-2 & 3	:	40 yrs.
Post -4	:	45 yrs.
Post-5	:	35 yrs.
Post-6	:	45 yrs.
Post - 7	:	35 yrs.
Post-8	:	45 yrs.
Post -9	:	45 yrs.

Qualification & Experience

Post 1: (i) A Medical Qualification included in the first or second schedule or Part II of the Third Schedule to the Indian Medical Council Act, 1956 (persons possessing qualifications in part II of the Third Schedule also should fulfil the conditions specified in Section 13 (3) of the Act).

(ii) Must be registered with the Central/State Registration Council.

(iii) D.M. Cardiology

(iv) Four years teaching and/or research experience after D.M. qualification in the case of 2 years course and three years after DM in the case of 3 years course and nine years after MBBS with DM in the case of direct 5 yr. course.

(v) Desirable: Adequate research experience as evidenced by publications.

Post - 2 : (i) and (ii) as above for post 1

(iii) D.M. Neurology

(iv) One year teaching and/or research experience after DM in the case of 2 years course and just after DM in the case of 3 years course and 6 years after MBBS with DM in the case of direct 5 yr. course.

Post - 3 : (i) and (ii) as above for post (i)

(iii) M.D. Anaesthesia

- (iv) Three years of teaching and/or research experience after obtaining the requisite postgraduate qualifications. In case of postdoctoral certificate course holders of this Institute in Anaesthesia, one year duration of the course will be considered as teaching/research experience.

Post - 4 : (i) MBBS

- (ii) Postgraduate degree or Diploma in Medicine or its specialities.

- (iii) Postgraduate degree in Economics or evidence of having attended a regular postgraduate course of study in economics.

Job Description

- (1) Design, conduct and analysis of epidemiological studies of relevance.
- (2) Act as consultant in data analysis and biostatistics for studies in clinical disciplines.
- (3) Economic evaluation studies — cost benefit/costing in relevant areas.
- (4) Evaluation of technological interventions in health.
- (5) Teaching concepts of study design & research methods.

Post - 5 : (i) MBBS and DCP/DIB

- (ii) Two years experience in blood transfusion work in a large hospital of not less than 500 beds or in a hospital for advanced specialities.

Post - 6 : (i) 1st class M.Sc. Physics with a minimum of 6 years of R & D experience or a Ph.D. degree preferably with some experience.

- (ii) The R & D experience should be in the areas of design, use and/or applications of lasers in the medical field.

Job Description: The scientist/engineer is required to initiate and independently carry out R & D programmes pertaining to applications of lasers in medicine and surgery. The duties would involve design and fabrication of accessories and delivery systems for applications in diagnosis, therapy and surface modification of implants.

Post - 7: Essential Qualification: First Class Bachelors Degree in Eng. (B.E/B.Tech.) in Instrumentation or Electronics Engineering.

Preferable: One year of hardware experience in assembly/fabrication/testing of Electronic Instrumentation Systems utilising transducers.

Job Description: The scientist/engineer is required to carry out design, development, fabrication and standardisation of sensors and transducers to measure physical parameter like temperature, pressure, flow etc. for bio-medical applications.

Post - 8 : (i) B.A./B.Sc./B.Com degree from a recognised University

- (ii) Ten years' experience in purchase of which 5 years should be in supervisory capacity in a purchase department of Government/Similar Institution/Government Undertaking. Must be conversant with import procedure and clearance of imported consignments. Working knowledge in typewriting will be considered as additional qualification.

Job Description

The Purchase Officer is responsible for the purchase of both import and indigenous purchases, observing the purchase procedure of the Institute. He should have liaison with the Customs Department with regard to the import and purchase of imported items, filing of the relevant documents in accordance with the rules, customs clearance etc. It is his duty to see that the purchase is so regulated that there is uninterrupted supply of various items required in the Institute.

Post - 9 : (i) B.A./B.Sc./B.Com from a recognised University.

- (ii) 12 years experience in matters of Finance and Accounts in the Institute/Government or Autonomous agency/commercial undertaking of repute of which seven years must have been in supervisory cadre. Persons with SAS qualification and at least 5 years experience in audit/accounts branch of a Government/Semi Government organisation.

or

Graduate and Fellow/Associate Members of the Institute of Chartered Accountants or the Institute of Cost and Works Accountants preferred.

Post carry allowances as per Central Government rates.

Essential qualification relaxable in case of candidates of exceptional merits by the selecting/appointing authority.

Persons working under Central/State Government or in a Public Sector Undertaking should submit application through proper channel.

Applications on plain paper with biodata of the candidate and attested copies of certificate of educational and professional qualification, date of birth, experience, etc. should reach the Director, Sree Chitra Tirunal Institute for Medical Sciences and Technology, P.B.No.2414, Thiruvananthapuram-11 on or before 25-10-1991.

In all matters pertaining to this advertisement, the decision of this Institute, shall be final and binding.

DIRECTOR

UNIVERSITY OF LUCKNOW

Advertisement No. 5/1991

WANTED

PROFESSORS (Rs.4500-150-5700-200-7300)

1. One in Anthropology
2. One in Constitutional & Administrative Law

READERS (Rs.3700-125-4950-150-5700)

3. One temporary (likely to be made permanent) in Hindi
4. One temporary (likely to be made permanent) in Urdu

LECTURERS (Rs.2200-75-2800-100-4000)

5. One temporary (likely to be made permanent) in Persian
6. One temporary (likely to be made permanent) in Urdu
7. One temporary in Library Science
8. One in Statistics
9. One in Business Administration, Faculty of Commerce
10. One in English

QUALIFICATIONS

As laid down in the Lucknow University First Statutes.

GENERAL

Benefits of Provident Fund/Pension available as admissible under the rules. Period of probation for permanent posts is one year. It is not necessary to fill any/all of the advertised posts and number of posts can be altered.

Prescribed application forms can be obtained, free of cost, by sending a self-addressed envelope of size 23x10 cm with postage stamps worth Rs.7/- from the Office of the Registrar. Last date for submission of applications, duly completed in all respects, with recent testimonials, publications, etc. and a Bank Draft of Rs.15/- drawn in favour of the Registrar, Lucknow University, payable at any Bank in Lucknow, is October 31, 1991. Applications without Bank Draft will not be accepted. Candidates who are in service should send their applications through proper channel. Application forms to outstation candidates will be sent upto October 23, 1991. Canvassing will be a disqualification.

J. P. Sinha
REGISTRAR

REGIONAL ENGINEERING COLLEGE

Hazratbal, Srinagar, Kashmir - 190006

Advertisement Notice No. PD/4 of 1991

Dated 21-9-1991

Fresh Applications on plain paper accompanied by (a) five copies of BIODATA (b) a

bank draft for Rs.40/- (Rs.30/- in the case of SC/ST) are invited for the post of PRINCIPAL of the College in the pay scale of Rs.6300-200-7300 (Revised) plus allowances, admissible under rules.

The applications should be addressed to the Principal of the College and should reach the College on or before **21st OCTOBER, 1991**.

QUALIFICATIONS/EXPERIENCE FOR THE POST ARE ESSENTIAL

Ph.D. with 1st class degree at Bachelor's or Master's level in Engg/Tech or Applied Sciences with atleast 15 years' experience in two or more of the following fields:

- Teaching at an Institution of University standard;
- Research in a recognised institution or organisation;
- Industry including Govt. departments in a senior executive position;
- Planning & Administration of technical education.

Atleast Five years of experience should be in an Eng. Institution of University standard.

DESIRABLE: Administrative experience in a responsible position.

NOTE:- Candidates from Industry/Profession with recognised professional work of high standard recognised at National/International level equivalent to Doctorate would also be eligible.

JOB RESPONSIBILITY

- Academic and administrative management of institutions;
- Policy Planning and providing academic and administrative leadership;
- Monitoring and evaluation of academic and research activities;
- Promotion of Industry-institution interaction and R&D work;
- Providing consultancy services;
- Participation in policy planning at Regional/National level for development of technical education.

The age of the candidate should not be less than 45 years. The age of superannuation is 60 years. The tenure of the post of the Principal shall be three years with possibility of renewal dependig on the merits of the case.

The post carries the benefits of C.P.Fund/G.P.Fund under the College rules besides rent free simply furnished accommodation in the college campus.

Candidates called for interview will be paid first class return railway and road fare to meet part of their journey expenses.

Persons already employed should send their applications through proper channel. Persons who have already applied for the post in response to Advertisement No. PD/3 of

1991 need not apply again.

The advertisement is being issued under the orders of the Chairman, Board of Governors of the College.

A.M. Wani
Acting PRINCIPAL

INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES (Deemed University)

**Govandi Station Road, Deonar,
Bombay - 400 088**

Applications in the prescribed form are invited for one post of Reader in the Department of Mathematical Demography and Statistics.

Qualifications and Experience: Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) Research or (ii) innovation in teaching methods or (iii) production of teaching materials. Specialisation in the field of Mathematical Demography and Statistics.

About 5 years' experience of teaching and/or research provided that at least 3 of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Scale of Pay: Rs.3700-125-4950-150-5700. Age - Not more than 45 years. Application forms may be obtained from the Administrative Officer either in person or with a self-addressed envelope affixing Rs.4.00 stamps. The last date for request of application form is **28th October 1991**. Completed application alongwith Caste certificate should reach the Institute latest by **11th November 1991**.

Applicants working in Govt. organisations should send their applications through proper channel. The post carries dearness and other allowances as admissible to Central Government Employees of equivalent grade stationed in Bombay.

K.Srinivasan
DIRECTOR

ST. PAUL'S COLLEGE (Affiliated to Mahatma Gandhi University)

Kalamassery - 683 503

Kerala, S.India

WANTED

Wanted Lecturers (Subject to the approval of University/Government) in Physics and Mathematics (Leave vacancies) under Community/Open merit. Age and qualifica-

tion: As applicable for direct recruitment of teachers in Government colleges. Applications should reach the Manager, St. Paul's College, Kalamassery - 683 503 within one month from the date of publication of this notification. The prescribed application forms can be had from the college office on payment of Rs.25/- (By post Rs.32/-).

MANAGER

PANJAB UNIVERSITY CHANDIGARH

Advertisement No. 6/91

Applications are invited for the post of Associate Dean, College Development Council, so as to reach the Registrar, Panjab University, Chandigarh by **25-10-1991**. The post carries the pay scale of Rs.3700-125-4950-150-5700 (Revised).

Qualifications

- Second class (a) M.A. or M.Sc. degree or (b) an equivalent degree.

Provided that the condition of second class may be relaxed in the case of persons already approved as Lecturers in the colleges affiliated to this University.

and

- Atleast ten years' teaching experience in affiliated colleges/teaching departments of this University or other institutions of similar standing.

Provided that in the case of persons holding Ph.D. degree, the period of teaching experience required may be relaxed to 5 years.

Desirable

- Administrative experience at College/University Department level.
- Intimate knowledge of the functioning of affiliated colleges.

NOTE

- The appointment will be on probation for one year in the first instance. The probationary period can be extended for another year.
- The age of retirement is 60 years.
- It is not obligatory on the part of the University to call all qualified persons for interview.
- The University may, if it so chooses, appoint a person on deputation.
- The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration alongwith applications received in response to the advertisement.
- On the recommendations of the Selection Committee, the appointing authority can relax any qualifications in case of those considered by it to be eminent educationists/otherwise suitable.

7. The post is non-vacation academic position.

8. The University may also prepare a panel in order of merit upto 3 persons which shall be valid for a period of six months.

Persons already in service must route their applications through proper channel. They may, however, send an advance copy of their application, on the prescribed proforma, direct to the university. They will be allowed to present themselves for interview

only on the production of 'No Objection Certificate' from their employers. Incomplete forms will not be considered. Forms received after the due date are liable to be rejected unless the Vice-Chancellor condones the delay by a special order. Attested copies of certificate in support of qualifications for Matriculation/School leaving, Graduation and Post-Graduation examinations be attached to the application. Canvassing in any form will disqualify the

candidate.

Application form can be obtained from the Cashier, Panjab University, personally. The cost of application form (inclusive of the application fee) is Rs 15/-. The priced form may also be had by making a written request to the Deputy Registrar (Establishment) Panjab University, Chandigarh, accompanied by a self addressed stamps envelope of 23x10 cm and a postal order of Rs 15/- drawn in favour of the Registrar, Panjab University, Chandigarh 160 014.



KARNATAK UNIVERSITY, DHARWAD

NO.KU BOA/ADVT/91-92/358

DATE:1-10-19991

ADVERTISEMENT

Applications (Eight Sets) in the prescribed forms are invited for the below-mentioned posts in the Post-Graduate Departments, K.U., Dharwad/Belgaum/Karwar and Constituent Colleges of Karnatak University, Dharwad, so as to reach the REGISTRAR, KARNATAK UNIVERSITY, DHARWAD on or before 30th November 1991 by the Registered post A.D. from duly qualifying candidates of Indian Nationality.

A set of eight (8) prescribed application forms and the Instruction Sheet can be had from the DIRECTOR, PRASARANGA, KARNATAK UNIVERSITY, DHARWAD-3 in person on presentation of cash challan for having credited the amount of Rs.32/- to the State Bank of India, K.U. Campus, Dharwad, or by post duly sending a self addressed 28 x 12 cms. stamped (Rs.5/-) cover alongwith a crossed Bank Demand Draft for Rs.32/- payable to the Finance Officer, Karnatak University, Dharwad.

Those candidates who had already submitted their applications for the following posts in response to the earlier Advertisements of this University, should necessarily apply afresh.

In respect of Backlog post, the candidates who had already submitted their applications in response to our advertisement No.KU BOA/Advt/89-90/319 dated 12-10-1989 need not apply. Meanwhile if they have any more information to furnish, they may send to the Registrar, Karnatak University, Dharwad-3.

Details of Vacant posts with reservations

Name of the Departments and Posts	No. of posts vacant	Reservation
P.G. DEPARTMENTS DHARWAD/BELGAUM/KARWAR		
KANNADA		
PROFESSOR (Veerashaiva Literature)	1	ST BACKLOG
LECTURER (Specialisation in Sanskrit)	1	SC
LECTURER (Kannada Language & Veerashaiva Literature)	1	GROUP-D
LECTURER (Kannada Literature Folklore, Mass Communication)	1	GM
SANSKRIT		
READER	1	ST
LECTURER	1	GM
HINDI		
PROFESSOR	1	UNRESERVED
ENGLISH		
PROFESSOR	1	UNRESERVED
READER	1	SC BACKLOG
READER (Indian writing in English Commonwealth Literature)	1	GM
MARATHI		
PROFESSOR	1	UNRESERVED
FRENCH		
LECTURER	2	1-SC, 1-ST BACKLOG
HISTORY & ARCHAEOLOGY		
READER	1	ST BACKLOG
A.I. HISTORY & EPIGRAPHY		
PROFESSOR (A.I. History & Culture)	1	UNRESERVED

1	2	3
KANNADA RESEARCH INSTITUTE		
DIRECTOR	1	UNRESERVED
ECONOMICS		
PROFESSOR (Economic Theory/Econometrics)	1	ST BACKLOG
PROFESSOR (Development of Economics & Agricultural Economics)	1	GROUP-C
READER	1	GM
POLITICAL SCIENCE		
PROFESSOR	1	SC
LECTURER	3	1-GM, 1-GROUP-A, 1-GROUP-B
SOCIOLOGY		
PROFESSOR	1	UNRESERVED
SOCIAL WORK		
LECTURER	2	1-SC, 1-ST BACKLOG
ANTHROPOLOGY		
LECTURER (Linguistics)	1	GM
PHILOSOPHY		
READER	3	1-SC, 1-ST BACKLOG, 1-GM
EDUCATION		
PROFESSOR (Educational Administration)	1	UNRESERVED
LECTURER	2	1-SC BACKLOG, 1-GROUP-A.
LECTURER (Experimental)	1	1-ST BACKLOG
LIBRARY SCIENCE		
LECTURER	1	SC BACKLOG
GEOGRAPHY		
READER	1	GROUP B
MUSIC		
PROFESSOR	1	UNRESERVED
READER (Musiology Vocal Music)	1	GM
COMMERCE		
READER (P.G. Belgaum Campus)	1	ST BACKLOG
READER (Financial Management, Banking & Marketing)	1	GROUP-D
BUSINESS MANAGEMENT		
READER	1	GM
LECTURER (Studies)	1	ST BACKLOG
LECTURER	1	GROUP-A
MAHAYOGI VEMAN STUDIES		
READER	1	UNRESERVED
LAW		
READER	1	GROUP-A
LECTURER (Jurisprudence/Criminal Law)	1	SC BACKLOG
LECTURER	1	SC
STATISTICS		
PROFESSOR (Theory of Probability Statistical inference decision Theory).	1	GROUP-B
LECTURER	2	1-SC BACKLOG, 1-GROUP-A
BOTANY		
PROFESSOR	1	SC BACKLOG
LECTURER	1	GM
PHYSICS		
PROFESSOR (Nuclear Physics)	1	GROUP-C
READER (Radio Physics/Electronics/Desirable in Electronics)	1	SC BACKLOG
READER (Spectroscopy)	1	GROUP-A
READER (Radio Physics)	1	GROUP-B

1	2	3
CHEMISTRY		
PROFESSOR(Physical)	1	SC BACKLOG
PROFESSOR – Bio-Chemistry (Structure Function relationship of Proteins & Enzymology).	1	GM
PROFESSOR, (In-organic)		
(i) In-organic analytical Chemistry, (ii) Co-ordination Chemistry,	1	GROUP-C
(iii) Chemical Spectroscopy	2	1-GROUP-A 1-GROUP-B
READER (In-organic)	1	GROUP-D
READER (Organic)	1	GM
LECTURER (Physical)		
ZOOLOGY		
PROFESSOR (Biology of reproduction, Comparative Endocrinology, Fishery Biology).	1	GROUP-B.
MARINE BIOLOGY		
LECTURER	2	1-SC 1-ST BACKLOG
GEOLOGY		
PROFESSOR (Petrology, Mineralogy, Structure-Geology , Geo- Statistics).	1	SC
COMPUTER SCIENCE		
PROFESSOR	1	UNRESERVED
READER	1	UNRESERVED
LECTURER	3	1-ST BACKLOG 1-GROUP-A, 1-GROUP-B
SERICULTURE		
READER	1	UNRESERVED
LECTURER	1	UNRESERVED

CONSTITUENT COLLEGES

PHILOSOPHY		
LECTURER	1	SC BACKLOG
EDUCATION		
LECTURER	4	1-SC, 1-ST BACKLOG, 1-GM 1-GROUP-A.
GEOGRAPHY		
LECTURER	1	ST BACKLOG
MUSIC		
LECTURER (Vocal)	1	SC BACKLOG
LECTURER (Tabla)	1	GROUP-A
LAW		
LECTURER	1	ST BACKLOG
STATISTICS		
LECTURER	1	SC BACKLOG
GEOLOGY		
LECTURER	1	ST BACKLOG
PHYSICS		
LECTURER	2	1-SC, 1-ST

SCALE OF PAY IN THE POST-GRADUATE DEPARTMENTS

1.	Professor & Director (KRI)	Rs 4500-150-5700-200-7300
2.	Reader	Rs.3700-125-4950-150-5700
3.	Lecturer	Rs.2200-75-2800-100-4000
4.	Lecturer (Constituent Colleges)	Rs.1900-50-2300-75-2900-90- 3350-100-3650

With usual allowances admissible as per University Rules from time to time

QUALIFICATIONS FOR THE POST OF UNIVERSITY PROFESSORS/DIRECTOR(KRI) READERS/LECTURERS IN CONSTITUENT COLLEGES

KNOWLEDGE OF KANNADA IS DESIRABLE FOR ALL THE POSTS PROFESSORS

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at Doctoral level.

Or

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Candidate should have guided at least one student for Ph.D. and that the student should have actually obtained the Ph.D. before the prescribed date in the advertisement.

DIRECTOR (KANNADA RESEARCH INSTITUTE)

Knowledge of Kannada is essential and knowledge of Epigraphy is preferable in addition to the qualifications prescribed for the post of Professor.

PROFESSOR IN COMPUTER SCIENCE

- (i) A Ph.D. in Computer Science/Engineering with a first class degree at Masters level (Computer Science).
- (ii) A minimum of 10 years' teaching/research experience with at least five years as an Assistant Professor in an established university/college.
- (iii) Knowledge in System Design/Data Structures/Artificial intelligence is required.

READERS

Good academic record with a Doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years are as Lecturer or in an equivalent position.

READER IN COMPUTER SCIENCE

- (a) (i) M.Tech. Computer Science or (ii) M.Sc. in Computer Science or (iii) Master of Computer Application (MCA) (The later two courses should be of minimum of 2/3 years duration) Or (iv) Ph.D. with applied Mathematics with a minimum of 5 years of teaching Computer Science and B.Tech or MCA Level. (1st or Higher Second Class more than

55% marks.)

- (b) Ph.D./Equivalent Research/Development work (Software, Systems analysis, System design, Parallel processing, Natural language processing).
- (c) (i) Teaching/Research/Development work for a minimum period of 5 years for persons with qualification as under (a) (i). (ii) Teaching/Research/Development work for a minimum period of 7 years for persons as under (a) (ii) & (iii).

READER IN SERICULTURE

- 1. A first or second class Bachelor's degree in Science or Agricultural Science with Sericulture as one of the subjects.
- 2. A first class or second class Master's degree in Sericulture.
- 3. A Ph.D. degree with specialisation in Sericulture subject.
- 4. At least 8 years' of teaching and research experience in Sericulture.
- 5. Publication of work on Sericulture.
- 6. Knowledge of agricultural subjects preferred.

READER IN MAHAYOGI VEMAN STUDIES

M.A. (First/Second Class) and a Ph.D. in Philosophy or any other branch of Social Sciences or Humanities.

Research specialisation in Veman Studies, and a good grounding in Kannada/Telugu, in addition to the qualifications prescribed for the post of reader.

LECTURERS (GENERAL)

- (a) A Doctorate's degree or research work of an equally high standard; and
- (b) Good academic record with at least second class (C in the Seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary Programmes, the degree in (a) and (b) above may be in relevant subjects.

LECTURER IN MANAGEMENT STUDIES

A Master's degree in Business Administration or M.Tech in Engineering with first class with the provision that the incumbent would acquire a Doctorate degree within a period of eight years.

In the case of allied subjects like Industrial Psychology, Personnel Management, Business Statistics, Cost Accountancy, etc., where Lecturers could be recruited with qualifications other than M.B.A. and M.Tech. the minimum qualification would be the same as prescribed by the Commission for the faculties of Arts, Social Science in-

cluding Commerce and Science.

LECTURER IN COMPUTER SCIENCE

- (a) (i) M.Tech. Computer Science or (ii) M.Sc. in Computer Science or (iii) Master of Computer Application (MCA) (The later two courses should be of minimum 2/3 years duration). or (iv) Ph.D. in Applied Mathematics with a minimum of 3 years of teaching Computer Science at B.Tech. or MCA level. (1st or Higher Second Class more than 55% marks.)
- (b) Experience in programming/handling or Computers or teaching at Degree/P.G. Diploma level, for persons covered under (a) (i). 2 years of experience in the above for persons covered under (a) (ii & iii).

LECTURER IN LAW IN THE UNIVERSITY AND COLLEGE

- (a) LL.M. Degree; and (b) Good academic record with at least second class (C in the seven point scale) Master's Degree from an Indian University in a relevant subject or equivalent degree from a foreign university.

LECTURER IN MUSIC IN THE UNIVERSITY & COLLEGE

- (a) A good academic record with at least Second Class (C in the seven point scale) Master's degree in a relevant subject or an equivalent degree or diploma recognised by the university; and (b) Two years research or professional experience or evidence of creative work and achievement in his field of specialisation or a combined research and professional experience of three years in the field as an artist or outstanding talent. OR A traditional or a professional artist with highly commendable professional achievement in the subject concerned.

LECTURER IN EDUCATION

- (a) A Doctor's degree in Education or Research work of an equally high standard; and (b) Good academic record with at least Second Class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign university. OR (a) A Doctor's degree in any university discipline or research work of an equally high standard; and (b) Good academic record with an M.Phil degree in Education (which may be acquired while in service) from an Indian University or an equivalent degree from a foreign university.

Having regard to the need for developing inter-disciplinary programme one of the degrees in (a) & (b) above may be in relevant subjects, the other being in Education.

LECTURER IN FRENCH

- (a) A Doctor's degree or research work of

an equally high standard; and (b) Good academic record with at least second class (C in the seven point scale) Master's degree from an Indian University or an equivalent degree from a foreign university.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

LECTURER IN SERICULTURE

1. A first class or second class Bachelor's degree in Science or Agricultural Sciences.
2. A Master's degree in Sericulture with a minimum of second class.
3. A Ph.D. degree with specialisation in Sericulture.
4. Teaching and research experience in Sericulture preferred.

AT CONSTITUENT COLLEGES KNOWLEDGE OF KANNADA IS DESIRABLE

LECTURERS

- (a) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or equivalent degree from a foreign University; and (b) An M.Phil degree or a recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research work.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard it may relax any of the qualifications prescribed in (a) above.

LECTURER IN EDUCATION

- (a) Good academic record with at least second class (C in the Seven point scale) Master's degree in Education and also Master's degree in a relevant subject (10+2 level) from an Indian University or equivalent degrees from a foreign university; and (b) an M.Phil degree or a recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research work

For appointment to the post of Lecturer, the candidate must have obtained 55% marks at Master's degree in the relevant subjects or its equivalent grade and good academic record

High second class may be determined as

the mid point of the starting of the second class and starting of the first class of the University from where he has obtained the degree. The qualifications now being prescribed for different categories of teachers are the minimum qualifications only to determine the eligibility for applying for the post.

Candidates who have passed the ELIGIBILITY TEST and other similar test accredited by the U.G.C. for recruitment to the post of Lecturer, should necessarily enclose the Certificate to that effect alongwith the application forms.

Appointment to the posts may be permanent, depending upon the nature of the vacancy and the requirements of the university. In such cases, they will be on probation for one/two years according to the rules of the university.

Candidates selected for the above said posts, may be posted in the beginning or at a later date to work either at Dharwad or at any of the P.G. Centre (s) though the posts are shown as existing at a particular place at the time of advertisement.

As per Government order No. DPAR 28 SBC 86 dated 12-12-1986, applicant belonging to Scheduled Castes/Scheduled Tribe (Form- 1) Group-A, Group-B, Group-C, Group-D (Form-2) and Group-E (Form-3) are required to produce the copies of Declaration Certificates in the prescribed form for employment purpose issued by the authorities empowered to issue such certificates in support of their claims and the copies of school leaving certificate alongwith their applications. Such certificates should not have been issued earlier than one year by the concerned authorities empowered to do so.

In addition to the posts reserved for Scheduled Caste and Scheduled Tribe preference shall also be given to persons belonging to Scheduled Caste/Scheduled Tribe in respect of even the vacancies not reserved for them, if in the opinion of the Board, such persons possess suitable qualifications.

The entitlement of a person to be eligible for appointment against the quota other Backward Classes shall be determined not just on the basis of caste certificate but rather on basis of a Caste-cum-income certificate, which would include income of his own together with that of his parents and if either of the parent is dead, of his legal guardian.

When the vacancies are reserved for Group-A, Group-B, Group-C, Group-D &

Group-E and the candidates belonging to these Groups are not available the vacancies so reserved shall be filled by selection of candidates belonging to General Merit.

Sympathetic view will be taken for recruitment of Physically Handicapped persons for suitable appointments provided they fulfil the prescribed qualifications and conditions, subject to production of authentic certificate issued by the competent medical authorities.

Other details such as (qualifications in details, good academic records, guidelines and instructions) can be seen in the instructions sheet obtained alongwith the set of application forms.

V.V.Radiger
REGISTRAR

UNIVERSITY OF JAMMU Corrigendum

It is hereby notified for the information of all concerned that in pursuance of Resolution of the University Council dated 3.9.1991, the words 'For determining good academic record for the post of Lecturer a candidate must have obtained atleast 2nd Division in Bachelor's Degree' occurring at the end of para G of the Advertisement Notice No. Adm/TW/91/7588-7888 dated 20-8-1991, have been dropped. Consequently, good academic record will now be determined by the Selection Committee itself.

In order to enable those who may now be eligible in view of the above modification for appointment to the post of Lecturer advertised vide the said notice, the last date of applications for all the posts (including those of Professors, Readers and Programmers) has been extended from October 15, 1991 to 31st October, 1991.

REGISTRAR

**It pays
to
Advertise
in
University
News**

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Kochi - 682 022, Kerala

Ad.D2/66/SC/ST/91

Dated : 20th September, 1991

VACANCY NOTIFICATION

Special Recruitment from SC/ST Communities

Applications in the prescribed forms are invited from qualified candidates belonging to Scheduled Caste/Scheduled Tribe communities for appointment to the following posts:

No.	Department/School	Subject/Specialisation	No. of Posts
PROFESSOR[1]	Applied Chemistry	Applied/Industrial Chemistry	1
READERS[5]	Management Studies	Production Management/ Operation Management/ Quantitative technique	1
	Foreign Languages	English	1
	Environmental Studies	Chemical Engineering/ Environmental Engineering	1
	Mathematics & Statistics	Statistics	1
	Marine Sciences	Microbiology	1
LECTURERS[5]	Foreign Languages	German	1
	Industrial Fisheries	Fishery Management	1
	School of Management Studies	Management Studies	1
	Ship Technology	Material Science	1
	Marine Sciences	Physical Oceanography	1

Age & Scales of Pay	Age as on 01.01.1991	Scale of Pay
Professor -	Not more than 55 years	Rs.4500-7300.
Reader -	Not more than 50 years	Rs.3700-5700.
Lecturer -	Not more than 45 years	Rs.2200-4000.

A. Qualifications

The general qualifications are as prescribed by the University Grants Commission. For posts in subject/specialisation not covered under the UGC norms, the qualifications are as prescribed in the Kerala Government Gazette Notifications dated 13.12.1983 and 27.11.1984. Details of the qualifications prescribed for each post can be obtained alongwith application form).

B. Other Details

The age limit prescribed will not be applicable to the teachers already in the service of the Cochin University of Science and Technology.

The selection and appointment against the above posts will be made in accordance with the provisions contained in the Cochin University of Science and Technology Act 1986 and the rules prescribed by the University in this regard.

C. How to apply

Prescribed application forms alongwith information sheets can be had free of cost from the Administrative Office, Cochin University of Science and Technology, Kochi-22 on a requisition made to the undersigned.

Separate application forms should be submitted for each post applied for alongwith the registration fee as mentioned in the information sheet supplied along with the application form.

Application forms will be sent by post, if requested alongwith a self addressed envelope bearing postal stamp with Rs.3/- (The Sl.No. and name of the post should be clearly mentioned in the request). Request for application forms by post received after 31 October 1991 will not be entertained.

Completed applications alongwith copies of documents to prove age, community, qualification, experience etc. should reach the office of the Registrar before 5.00p.m. on or before 21 NOVEMBER 1991. Late and defective applications will be summarily rejected.

D.Indira Devi
Dy.Registrar-in-Charge

Attention Advertisers!

Kindly ensure that the period between the date of publication of the advertisement and the last date for receipt of applications is not less than 15 days.

Your copy should reach us not later than 4 p.m. Monday preceding publication.

Attention Publishers!

Publishers are welcome to submit their latest publications, other than Textbooks, for review in the *University News*. Two copies are required to be submitted; one is sent out to the reviewer while the other is retained in the office for reference and record. All reviews published in *University News* are signed.

REFERENCE AND RESEARCH TOOLS

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

Invaluable reference for those seeking to register for a Doctoral Programme

The bibliography is classified by subjects and covers all the disciplines in which a doctoral degree is awarded by the Indian Universities. Each entry gives complete bibliographical details, viz., name of the research scholars, title of the thesis, university/institute where the research was conducted, years of registration and award of degree, availability note – whether the thesis is available in the university library/department concerned/university office and the name and complete address of the guide/supervisor.

Comprehensive and exhaustive as the bibliography is, it not only reports the research being conducted at the university centres, but also includes research work done at the institutions of national importance, like the IITs, institutions deemed to be universities, like the Indian School of Mines, CSIR Laboratories as also the research establishments connected with ICAR and ICMR.

The bibliography is indeed a measure of the research output of the country.

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1976-77

Natural & Applied Sciences	Rs. 120.00
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Natural & Applied Sciences	Rs. 100.00
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Natural & Applied Sciences	Rs. 320.00
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1986-87

Natural & Applied Sciences	Rs. 325.00
Social Sciences & Humanities	Rs. 245.00

1987-88

Natural & Applied Sciences	In Press
Social Sciences & Humanities	Rs. 340.00

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Address Enquiries to:

Deputy Secretary (Publications)

Association of Indian Universities
AIU House, 16 Kotla Marg, New Delhi - 110 002

Telephones: 3310059, 3312429, 3313390, 3312305

Telex: 31-66180 AIU IN

GRAM: ASTNDU

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH & TRAINING

Sri Aurobindo Marg, New Delhi - 110016

NCERT invites applications for the following posts:

Designation, number of vacancies, reservation if any, Educational qualifications and Experience in respective fields are indicated below:

1. **CHIEF EDITOR:** One post (reserved for SC): (i) A Master's degree from a recognised university, (ii) 10 years' experience in a large publishing house.
2. **EDITOR(Urdu):** One post, (i) A Master's degree in Urdu from a recognised university, (ii) 7 yrs' experience in a publishing house.
3. **ASSISTANT EDITOR:** One post, (i) A University degree, (ii) 5 years' experience in a publishing house.
4. **BUSINESS MANAGER:** Two posts (one reserved for ST), Short terms but likely to continue. (i) A University degree, (ii) 10 years' experience in a publishing house.
5. **ASSISTANT BUSINESS MANAGER:** One post (reserved for ST), (i) A second class university degree, (ii) 5 years' experience of organising/promoting of books.
6. **ASSISTANT PRODUCTION OFFICER:** One post (reserved for ST), (i) A diploma in Printing Technology from a recognised institution or two years post-graduate diploma in Book Publishing and specialisation in production; (ii) 5 years' experience in printing/production of text-books and other publications.
7. **MARKETING EXECUTIVE:** Three posts (one post reserved for SC), Short term but likely to continue, (i) At least a second class university degree, (ii) Three years experience in Marketing and Sales of publications.
8. **PRODUCTION ASSISTANT:** Four posts (one reserved for SC), Short term but likely to continue, (i) A Diploma in Printing Technology from a recognised institution or two years post-graduate Diploma in Book Publishing with specialisation in Book Production, (ii) 3 years' experience in printing/production in a publishing/printing organisation, (iii) Thorough knowledge of calculation and estimation of cost of Production of Publications.
9. **SR. TECHNICAL OFFICER:** One post (reserved for SC), (i) Degree in Mechanical or Electrical Engineering, (ii) 7 years' professional experience in a responsible capacity.
10. **SENIOR SYSTEMS ANALYST:** One post, Short term but likely to continue, (i) At least 2nd class Master's degree in Maths/Statistics/Economics with training in Computer programming in FORTRAN/COBOL/BASIC languages, knowledge of DBMS or degree in Computer science, (ii) Post-graduate Diploma in Computer applications, (iii) At least 5 years' experience in software development.
11. **PROGRAMMER:** Two posts (one reserved for SC), Short term but likely to continue. (i) At least 2nd class Master's degree in Mathematics/Statistics/Commerce/Economics with training in Computer programming in FORTRAN/COBOL/BASIC languages and knowledge of DBMS or degree in Computer Science, (ii) Post-graduate Diploma in computer applications, (iii) At least 3 years' experience in Software development.
12. **ASSISTANT ENGINEER:** Two posts (reserved for SC). (i) Degree in Electrical Engineering/Electronics/Electrical Communication or M.Sc. degree in Physics with Wireless Communication or Electronics as a special subject or equivalent, (ii) 3 years' experience in operation and maintenance of TV/Broadcasting studios in a responsible capacity.
13. **TV PRODUCER GR.II** One post (reserved for ST). (SC candidates can also apply), (i) A university degree, (ii) Diploma in Film direction of TV Production from a recognised institute or 3 years' experience in direction/production of film/TV Programmes.
14. **TECHNICAL GRADE I:** One post (reserved for ST), (i) A National Trade Certificate in 'Electrician/Radio and TV' from NCTVT after two year study in Industrial Training Institute or similar institution or the Central and/or State Govts. (ii) One year working experience after obtaining the National Trade Certificate in operation and maintenance in a reputed organisation engaged in the production and/or audio/video recording of programme.
15. **ELECTRICIAN:** Two posts (one reserved for SC), (i) I.T.I. certificate or equivalent in the trade of Electrician or Wireman and Wireman's licence from a recognised institute; (ii) 2 years experience in Electrical installations.
16. **COPY HOLDER:** One post (reserved for ST), (i) Matriculation or equivalent, (ii) knowledge of typography and at least one year experience of working in a publishing concern. (Desirable) – (i) I.T.I. Certificate in Proof Reading, (ii) Experience of working as a copy-holder in a publishing house of repute.

For Demonstration Multipurpose Schools at the Regional Colleges of Education of NCERT at Ajmer, Bhopal, Bhubaneswar and Mysore. Educational qualifications/experience etc. as per KVS pattern.

17. **HEADMASTER:** Two posts (one reserved for ST).
18. **POST GRADUATE TEACHER:** 9 posts, (i) Two in Economics (one for SC and one for P/H), (ii) Two in Physical Education (one for SC), (iii) Two in Biology, (iv) One in Physics, (SC/ST), (v) One in Geography, (vi) One in Fine Arts.

Pay Scales: Rs.3000-5000 for Sr. No. 1; Rs.3000-4500 for Sr.Nos.2,4,9,10,17; Rs.2200-4000 for Sr.Nos.3,5,6,12; Rs.2000- 3500 for Sr.No.11; Rs.1640-2900 for Sr. Nos. 7,8,13,18; Rs.1400-2300 for Sr.No.14; Rs.1100-50-1500 for Sr.No.15; Rs.950-1500 for Sr.No.16.

Age Limit: 50 years for Sr.No.17; 45 years for Sr.Nos.1,4,9; 40 years for Sr.Nos.2,18; 35 years for Sr.Nos.3,5,6,10,12,13; 30 years for 7,8,11,14; 25 years for 15 & 16.

Notes: (a) Age limits will be considered as on 1.8.91. Age concessions allowed for SC/ST candidates as per Govt. of India instructions. No age limit for the employees of the Council. (b) The number of vacancies is liable to change. (c) The selected candidates can be appointed/posted in any of the establishments of the Council anywhere in India. (d) If a candidate is found to be of exceptional merit, relaxations of qualifications, experience, age etc. may be given by the Selection Committee in its discretion. (e) Those employed in Govt./autonomous organisations should send their applications through proper channel.

Additional information regarding qualifications etc., will be supplied with the application forms which can be obtained from the Secretary, National Council of Educational Research and Training (NCERT), Recruitment-III Section, Dr. Zakir Hussain Khand, 5th Floor, Room No.8, Sri Aurobindo Marg, New Delhi- 110016.

Completed applications alongwith attested copies of certificates of qualifications and experience etc. and a crossed Indian Postal Order for Rs.8/- (No fees for SC/ST candidates), in favour of Secretary, NCERT, should reach him by **November 4, 1991**. Applications received without prescribed fee and/or received after the closing date will not be entertained. (Advt. No.TR-6).



THE WORLD TOMORROW

As Bapu saw it



“The world of tomorrow will be, must be a society based on non-violence. This is the first law; out of it all other blessings will follow.

Individuals, groups and nations must adopt the way of non-violence, the way of love.

I see then no poverty in the world of tomorrow, no wars, no revolutions, no bloodshed.”

Progress through Peaceful Change

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Editor :
SUTINDER SINGH

The Role of a Teacher Trainer Model or Guide?

A. Joseph*

Teacher training has been emphasised as a corollary to the new dimension given to the basis of education in the New Education Policy, viz., the use of knowledge versus display of knowledge as knowledge. This is a very useful and practical approach to strengthen the foundations of our educational system. The focus on the importance of the teacher's role in the classroom underscores the notion of interaction as an essential component in the programme of imparting education. The act of interaction is a uniquely human event. It is not just cued responses and cleverly managed turn-taking. It is an exposition of the myriad beliefs, dreams, sympathies and even prejudices of a person who is for ever attempting to define both for himself as well as to others his individuality, through his reactions to even the most ordinary aspects of life. Hence the course of human interaction is unpredictable and if we can be sensitive to the implications which express the "haecceitas" — the thisness — of a person, then we will be able to realise and appreciate not only the structure of his analytical competence but also the projections of his heuristic competence. Moreover, in such human interactions both the participants benefit mutually, which reiterates the fact that every human being has something special about him which he can offer to the benefit of others. It is this interaction which the teacher in the classroom is required to initiate and encourage, if the pupils are to blossom forth into individual who will use the knowledge acquired in the classroom for the benefit of the nation. Thus, it is imperative that the teacher should have the disposition to use interaction as a means of imparting knowledge. This requires a different kind of orientation to be given to him in the teacher training programmes.

Eversince the democratisation of education, the shift has been from the emergence of a teacher, i.e., the guru, to the training of a person to take up the profession of teaching. Presumably, those who opt to be teachers are those with an innate capacity and inclination to teach others what they know and cherish. So, the training takes the shape of introduction of the trainees to new theories and trends in their subjects of specialisation, psychology of learning, methodology in the classroom and preparation of teaching materials. The main thrust in these programmes is on upgradation of the teacher's knowledge and this is done by a teacher-trainer who is par excellence in the storage and demonstration of knowledge. Though the trainees are quite excited about the chance to widen the horizons of their knowledge, they feel depressed to realise that whatever they have gained in such programmes will be of no relevance to their classroom situations. Why is there such a feeling of despondency among the teachers? The answer to this question will be found if we take a closer look at the profile of the teacher-trainer presented to the trainees during the training programmes.

The teacher-trainer is usually an exceptionally talented person who has acquired some expertise in his field of specialisation. He is upto date in his knowledge of the subject, manipulates the theoretical principles to produce even exotic results and demonstrates techniques with finesse. It is a pleasure to watch him. He is a perfect model. There is even the suggestion that if his techniques are followed, there should be successful learning in all situations. The trainee is filled with awe and admiration for the teacher-trainer and is grateful that he had the good fortune of

(Contd. on page 4)

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Admission and Declaration of Results as a result of Fraud/Misrepresentation

Whether Estoppel against their Withdrawal/Cancellation?

B. D. Agarwala*

Wrong declarations, submission of forged certificates, manipulations of tabulation charts, forged or manipulated marksheets and the like are gradually becoming the order of the day. These methods are being resorted to more and more either for seeking admissions in various universities and other educational institutions, or before, or after the declaration of results of the various examinations conducted by these institutions. This is done sometimes solely by the candidates on their own and sometimes with the connivance of the authorities. Whatever it be, many of such cases happen to ultimately enter into courts by way of proceedings initiated in that forum and justice is sought. This is so, both in the regular civil courts as also, more, in the various High Courts and ultimately some travel up for adjudication to the apex court of the land, the Supreme Court of India.

A question which frequently arises is the question as to whether the particular university or the institution would be estopped from withdrawing/cancelling the admission or the declaration of the result as made in pursuance of or as a result of fraud/misrepresentation.

Estoppel is a rule of equity and hence the following two well-known maxims of equity will apply :

- (i) He who seeks equity must do equity;
- (ii) He who comes into equity must come with clean hands.

(See *Snell's "Principles of Equity" 28th Ed'n., Part I, Chapter III*).

The Supreme Court had the occasion to consider the doctrine of estoppel embodied in Section 115 of the Evidence Act in the case of *Gyarsi Bai Vs. Dhansukh Lal* (AIR 1965 SC 1055 (1061) Paragraph 8). The three conditions laid down were:

- (i) Representation by a person to another;
- (ii) The other shall have acted upon the said representation; and
- (iii) Such action shall have been detrimental to the

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interest of the person to whom the representation has been made.

In *Maddanappa Vs. Chandramma* (AIR 1965 SC 1812 Paragraph 9) it has been observed by the Supreme Court thus :

"The object of estoppel is to prevent fraud and secure justice between the parties by promotion of honesty and good faith. Therefore, where one person makes a misrepresentation to the other about a fact, he would not be shut out by rule of estoppel, if that other person knew the true state of facts and must consequently not have been misled by misrepresentation".

Estoppel again received detailed consideration of the Supreme Court in the case of *M.P. Sugar Mills Vs. State of U.P.* (AIR 1979 SC 621). Even in this case where the Court strongly disapproved resilience from a promise, it was held that this principle of estoppel, which being a principle evolved by equity, and is meant for prevention of fraud or manifest justice would obviously stand ruled out in a case where fraud itself brings about the representation. This fundamental principle again came to be noticed by the Supreme Court in *Commissioner of Income Tax (Central) Vs. B.N. Bhat-tacharjee* (AIR 1979 SC 1725) and Krishna Iyer J. speaking for the court said at page 1738 :

"What in essence is estoppel? Estoppel is a rule of equity which forbids truth being pleaded or representation on, which faith, another has acted to his detriment being retracted....."

In *S.B. Noronah Vs. Prem Kumari Khanna* (1980 1 SCC page 52), it has been observed thus in paragraph 20 :

"It is an old maxim that estoppels are odious although considerable inroad into this maxim has been made by modern law. Even so, a judgement obtained by fraud or collusion, even, it seems, a judgement of the House of Lords, may be treated as a nullity. The point is that the sanction granted under Section 21, if it has been

procured by fraud or collusion, cannot withstand invalidity because, otherwise, high public policy will be given as hostage to a successful collusion."

In *Bouvier's Law Dictionary*, 3rd Revised Edn. at page 1083, second column, second-last paragraph, it has been stated thus :

"This doctrine does not apply where the defence is that, by reason of fraud, the writing on which the estoppel is claimed does not embrace the contract as originally made."

In *Bigelow on Estoppel — Carter* (Sixth Edn. at page 646), it is stated thus :

"The representation must have been a free voluntary act; and if obtained by the party who acted upon it, it must have been obtained without artifice. If it has been procured by duress or by fraud, there will be no estoppel upon the party making it, it would seem, though he made it with the full intention that it should be acted upon; indeed it is said that where the conduct supposed to have created an estoppel was brought about or directly encouraged by the party alleging the estoppel, no estoppel is created....".

In the case of *Shri Krishan Vs. Kurukshetra University* (AIR 1976 SC 376) the University was held estopped from withdrawing the candidature of a candidate at the examination. This was a case on its own peculiar facts and the decision was based on a provision in the Ordinance where power of withdrawal of candidature was limited to the time before the candidate took the examination. It was in these circumstances that the Supreme Court permitted the plea of estoppel to be successfully invoked. Cases of false statement of concealment were noted as exceptions in this case also. This decision of the Supreme Court came to be followed by the different High Courts in the context of varying facts. Many wrong decisions were reached as a result of blindly following this decision without taking notice of the very basis of the decision of the Supreme Court. No general rule was laid down by the Supreme Court in that case to the effect that the principle of estoppel could be successfully invoked in every case where the admission or the declaration of results once made was sought to be cancelled or withdrawn.

This Supreme Court decision in the case of *Shri Krishan Vs. Kurukshetra University* (Supra) also came to be followed by the Allahabad High Court in the case of *Tarkeshwar Lal Vs. University of Gorakhpur and Ors.* and other connected cases (*Writ Petition 1209 of 1977 etc.* decided on April 26, 1978). These were cases of manipulation in the tabulation charts, in connivance with university officials.

In *Kedar Lal Vs. Secretary, Board of High School and Intermediate Education* (AIR 1980 All, 32) where before another Division Bench of the same Court reliance was placed upon the decision of the Supreme Court in the case of *Shri Krishan Vs. Kurukshetra University* (Supra), the court clearly held that in that case the Kurukshetra University did not have the power to withdraw the candidature and hence the decision being on its own facts was clearly distinguishable. By this decision doubt as to the general applicability of the aforesaid case of *Shri Krishan Vs. Kurukshetra University* (Supra) stood allayed to a certain extent but it continued to be followed by the various High Courts depending upon the particular set of facts in the context of which the decision was called upon to be made by the Court, and where relief was intended to be given to the candidate concerned. The decision of the Allahabad High Court in the case of *Tarkeshwar Lal Vs. University of Gorakhpur and Ors* (Supra) was appealed against in the Supreme Court which ultimately after a lapse of several years came to be finally decided on 2.8.1991 (*Civil Appeals Nos. 692/80, 693/80, 719/80, 720/80 and 721/80*). The Supreme Court was of the view that law was well-settled on the subject; and held that no question of estoppel could arise against the University if admission to examination was obtained on misrepresentation, and the orders of the High Court were set aside.

In *Ashok Chand Singhvi Vs. University of Jodhpur and Ors* (1989) 1 SCC 399, Supreme Court while granting relief to the candidate concerned cautioned to make a note that upon the facts placed before it, the candidate was not at fault, and hence, he should not be made to suffer for the mistake of the authorities. Yet, in another case *Sanatan Gauda Vs. Behrampur University and Ors* (1990) 3 SCC 23) Supreme Court while allowing the appeal of the candidate in relation to declaration of his result by the University, and granting relief to him clearly noted that that was not a case where the appellant could be accused of making any false statement or suppressing any relevant fact and could not be accused of any fraud or misrepresentation.

Actions of authorities undoing their earlier acts, upon discovery of fraud or misrepresentation, have come up for adjudication before many High Courts. When the principle has been correctly applied, the plea of estoppel has been repelled. See -

In *Re: New Monkhooshi Tea Co.* (AIR 1967 Cal. 196)

In *Haripada Das Vs. Utkal University* (AIR 1978 Ori.68)

In *Krup Sindhu Malik Vs. Orissa Board of Secondary Education and Others* (AIR 1981 Orissa 91)

In *K. Raja Gopalan Vs. Tamil Nadu Public Service Commission* (1978) 2 MLJ 409)

In *Ganesh Prasad Soni Vs. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur* (AIR 1982 M.P. 116)

In *Madras Steelware Industries Madras Vs. Joint Chief Controller of Imports and Exports* (AIR 1977

Mad 377)

In Mst. Shib Dai Vs. Gauri Lal and Others (AIR 1965 J&K page 11 (13)).

The question next arises how is fraud established? It is not necessary that direct affirmative or positive proof of fraud be given. Circumstantial evidence is not only sufficient but in many cases it is the only proof that can be adduced. In matters that regard the conduct of men the certainty of mathematical demonstration cannot be expected or required. Like much of human knowledge on all subjects, fraud may be inferred from facts that are established. Care must be taken not to draw the conclusion hastily from premises that will not warrant it; but a rational belief should not be discarded because it is not conclusively made out. If the facts established afford a sufficient and reasonable ground for drawing the inference of fraud, the conclusion to which the proof tends must, in the absence of explanation, or contradiction, be adopted. It is enough if from the conduct of a party the Court is satisfied that it can draw a reasonable inference of fraud. (See *Kerr on the Law of Fraud and Mistake*, 7th Edn.).

In *Bower on "Law Relating to Estoppel by Representation"* (Second edn.) at pages 129-130, it has been stated thus :

"Illegality :

It is good affirmative answer to a case of estoppel by Representation that the allowance of the estoppel must result in an illegality. It is for the representor to bring the illegality to the notice of the Court, in which case the Court is bound to give effect to the objection and to ignore any estoppel which may stand in the way; indeed, whether the illegality is formally pleaded or otherwise insisted upon by the representor or not, it is the duty of the court, as soon as it has notice of it in any way, or from whatever source to take this course."

The Doctrine of Estoppel needs proper application. The factual matrix in each case varies. Any misapplication may become a most effective weapon for accomplishment of injustice.

The Role of a Teacher Trainer

(Contd. from page 1)

having had this wonderful experience in his life. While the high standard set up by the trainer leaves him elated, he also becomes aware of his own capabilities and often feels that he can never come up to the level suggested by the trainer. As a result, he considers the training as just a lucky glimpse into the Ideal and continues to carry out his duties in the classroom with the same doubts and frustrations concerning his method of transmitting knowledge to his pupils, as he had done before the training programme. Moreover, the assumptions underlying such training programmes — watching a performance is as good as doing it oneself, an excellent model is successful in all situations and teaching is repeating a set of procedures propagated to be good though convenient to the trainers, are not sound from the point of view of the psychology of learning. The inability to follow the model often results in the jettisoning of the entire model, so that even what is useful in it is lost to the participant.

On the other hand, the teacher-trainer should be a guide to the trainees. This role is more tentative than that of being a model. The diffusion of techniques can no longer be seen as being of a uniform pattern. The teacher-trainer while upgrading the trainee's level of knowledge, should also be keen on drawing out the inherent capacities of the trainee and enthuse him to work at his own pace and route in order to make his instruction in the classroom functional and helpful to the pupils. The "ad hocism" implied in this procedure may seem baffling, but it is not so really, once the trainer realises that he has only to channelise what the trainee possesses, to offer suggestions for improvement and

help him at times to make the inductive leap, rather than struggle to make divergent talents conform to a rigid pattern. The teacher-trainer should be capable of assessing how each individual deploys the knowledge at his disposal and through interacting with him gauge the possibilities of the scheme followed by the trainee. Therefore, the training programme should not be just transmission of facts from the knowledgeable one to those who are yet to be initiated, but a compassionate exploration of "sahridayas" engaged in the pursuit of how to use the available means to make the experience of discovering themselves enjoyable to the learners. Such an interaction will encourage trainees to try out, what little they can do by themselves, with confidence. This will surely be the beginning of a whole series of classroom-centred activities which they can manage with success. The training will then be professionally oriented and the trainees will have the satisfaction of having been respected as professionals and will courageously look forward to contributing their skill and energy for making the teaching-learning scene more realistic than at present. Being confident and enthusiastic about their methodology, the trainees will encourage interaction in their classrooms which will strengthen the basis of the pupil's learning process.

The teacher-trainer has a crucial role to play in shaping and sustaining the professional interests of the trainees. While doing so, he has to take on the onerous task of being a guide who has to spot the latent potentialities of the trainees, comprehend the strengths and weaknesses of a trainee's proposal and readily accept and acknowledge the trainee as a professional.

Cost Consciousness in Education

Need and Limitations

D.K. Ghosh*

Introduction

In today's world of extreme competition, the need for the right cost consciousness hardly requires justification. It is time, rather high time, that the cost consciousness should appropriately be conceived and brought into practice. Success in a competitive world lies in the efficient and effective management of cost benefit and cost effectiveness. It is simple and it is difficult and delicate too. It requires knowledge, vision and courage for application in different situations and time.

Knowing Cost Benefits and Cost Effectiveness

How much we already know the cost benefit in the educational sector is a big question. If one has to answer to this, he has to say 'hardly anything'. However, this does not mean that the functionaries in the education sector do not know that at all. Some know that, but that knowing has limitations. Firstly, knowing is theoretical and secondly, that knowing is not consciousness of the cost-benefit factors. Thirdly, those who know may not be the relevant functionaries to promote cost consciousness in the system. Quite a few universities have Management Department and yet one hardly finds any modern management technique or norm being applied there.

Cost-Benefit

Cost benefit is different from the cost effectiveness for while the cost benefit is measured in terms of money, cost effectiveness is not. Through cost benefit analysis, it is possible to evaluate education as an investment for the individual or for the society as a whole. "A calculation of the private rate of return to investment in education shows how profitable it is for an individual student or his or her family who invest in education, whereas the social rate of return provides a yardstick for evaluating education as a social investment. In either case costs of education are measured in terms of opportunity costs. The private costs of education include expenditure on fees, books, equipment, or travel together with earnings foregone by the student whereas the social costs include all current expenditures on tuition, as well as the value of school or college buildings and equipment, and the

foregone earnings of students which provide a proxy measure of the value of output foregone by the society when students choose to continue their education rather than join the labour market".¹

According to Mark Blaug in his paper on 'The Rate of Return on Investment in Education in Great Britain' "... since the benefits of University-education are diffused throughout society, it is the community as a whole which derives any economic benefits and not the individual concerned".² Carter and Williams in their evidence to the Robbins Committee on Higher Education - 1966 (UK) held that the primary benefit of investment in education goes to the student and then to the Society. The truth therefore is that benefits go both to the individual and society.

Cost-Effectiveness

Coming to the cost-effectiveness, analysis of this was originally developed for the evaluation of public money in such fields as military defence where the objectives are clearly definable and measurable, but not in terms of money. However, more recently, it is now being used for project evaluation for other areas of public expenditure including health and education.³

Reliability of cost effectiveness analysis in education is however disputed. In fact some analysts argue that it is impossible to do so. According to them, cost effectiveness analysis is an inappropriate technique for education. Fielden and Pearson (1978) define cost and while explaining two methods of applying effectiveness analysis, conclude as follows:

"Because educational outputs cannot be neatly measured ... technique is invalid constant or equal effectiveness is a myth. We recently undertook the evaluation of 30 projects which used computer-assisted learning in schools, universities and training establishments. We found that in no case was cost-effectiveness analysis relevant to our work".⁴

While to a great extent, the above observation is true, it has to be admitted that in order to find out the most effective ways of utilisation of educational resources, it is necessary to devise some means of comparing the efficiency of different institutions of choosing between

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alternative methods of achieving the same or similar objectives and of identifying the most effective ways for the purpose.

Promoting Cost Benefit and Cost Effectiveness Culture

As already observed it is high time that there is appropriate cost benefit and cost effectiveness culture. The needs are widely accepted and they are as follows:

- i) We have growing financial constraints and in that, greater constraint is on the educational sector. As compared to all developed countries and even some of the developing countries including Malaysia, Sri Lanka and Pakistan, smaller resources are allocated for education. Unfortunately, even the said scarce resources are neither properly allocated nor optimally and effectively used. There is an urgent need for that.
- ii) In a poor country like ours, where education is heavily subsidised by the public money, there is a strong need to understand the cost benefit and cost effectiveness of the public money.
- iii) Through the cost effective analysis, it is possible to compare two or more educational institutions with similar levels of cost in order to discover which achieves the highest level of output or results. The most cost effective institute is the one which maximizes the output achieved with a given level of cost.
- iv) Cost analysis also help find alternative means for both cost benefit and cost effectiveness. An example is the modern educational technology through the application of which it is possible to reduce the manpower need i.e. teachers, technicians and to an extent certain facilities.

In any case, Management of any organisation – big or small – would like to know the return on the investment either by way of benefit or effectiveness. A system of cost analysis would always contribute to betterment either of the product or of the system.

Scope for Cost Analysis

In the education sector, what may be the scope for cost benefit and effectiveness and what analysis may be possible would naturally be the ultimate question. To this the following are the possibilities:

- (1) To decide the actual manpower need both teaching and non-teaching and then optimal utilisation of that power.
- (2) Use of modern technology for teaching and for

laboratory work etc. (to an extent) replacing contact hours wherever possible without sacrificing the standard.

- (3) Optimal use of space, equipment and laboratory.
- (4) Constant review and control on various other operating costs, e.g. Electricity, Stationery, Transport and Travel.
- (5) Review the system of examinations, evaluation and curtail avoidable expenditure wherever possible.

In India, we have mostly two diametrically opposite situations. Situation one is that in a number of institutions full utilisation of the manpower and facilities are not made. In other words, there are more people and underutilised facilities than needed. Situation two is that we have quite a large number of institutions which suffer because they do not have adequate manpower and the minimum facilities. Since the additional manpower is nothing but a waste in the institutions of situation number one, they can be optimally utilised in institutions where there is shortage of manpower. This does not necessarily mean that the additional teachers of situation one should physically be transferred. What is envisaged is the investment needed for additional manpower which is otherwise a wastage can be diverted to the institutions which are suffering on account of the lack of manpower.

In today's context, particularly when the modern educational technology has been developing fast it is necessary that full advantage of the same should be taken. This will be cheaper than the manpower cost. However, this can be done to a limited extent only.

It has generally been the complaint in many institutions that the equipment, space and library which are all costly items are not optimally utilised. Examples of the equipment having remained without use for long time and also to an extent space, are many. Even the library use is not to the desirable level. This has been complained by many academics and national level bodies time and again.

Through the review of the system of examinations and the procedure for evaluation in the traditional universities, expenditure can be curtailed to a very large extent. For example, the number of examinations for which students have to formally appear and pay fees for a particular programme say B.A. degree or B.Sc. degree need be examined. While a number of universities would have only one examination at the end of 3 years, there are many universities which hold an examination

at the end of every year. In the case of the latter universities, the students have to pay fees three times as against only once in the case of the former universities. Besides, administrative expenditure as also the time of the teachers involved for evaluation are all that can be avoided and public expenditure curtailed. There is hardly any cost benefit to the students; universities may or may not earn.

Generally the experience shows that efforts in the past, although not so organised in some universities to tackle the problem with some of the suggestions as mentioned above did not lead to the desired consequence for the lack of determination. One way to bring about cost consciousness is to bring constraint so that the pressure is felt by everybody concerned and in turn, there is the desirable exercise and solution. Universities of UK had to effect sizeable financial reductions when they did not know what else to do. In the process, while some got over the difficulties for they realised the seriousness, others did not easily realise and suffered for having failed to take quick alternative action. But ultimately, they too were also forced to find alternative means. Today, they have all become cost conscious and in the process they have achieved cost benefit and cost effectiveness. They had also to find out alternative means to reduce expenditure without sacrificing the standard.

Limitations

Unlike other sectors, the education sector has certain limitations which are special to it. Despite sincere and right efforts the likelihood of achieving the desirable level of cost-consciousness and in turn cost benefit and effectiveness may not be too encouraging.

Primarily, education has to be viewed as a longterm investment for it is not capable of giving quick return. For the same reason, if there is a cut on education budget, the adverse result is also not seen immediately.

Besides, education as such is necessarily a welfare activity of the society through which alone all that we desire to do in a modern society are being achieved. In a number of sectors if activities are closed, there may not be irreparable loss as would be in case all educational institutions are closed. It is for this reason that education assumed greatest importance in Japan and through that alone, Japan has transformed its economy.

There is also social and political constraint in education as much as in other sectors which again comes in the way of cost effectiveness. For example, the Zero Base Budgeting — one of the important prerequisites

for successful implementation of the system is to review each activity every year before preparing the budget with reference to performance and need. Such exercises may render hundreds of thousands of people jobless and as we cannot afford to do that, our cost effectiveness suffers even though cost consciousness is there.

Conclusion

Besides the unquestionable need of cost consciousness and certain inherent limitations in that direction, there is a question which needs to be understood in the right perspective.

The question is while cost consciousness is necessary to spend the minimum to achieve the maximum, should that be the approach only when we utilize the public money for they are taxpayers hard-earned money. Should we or should we not be cost conscious when private funds are available? For example, when we spend public money we have generally to see that we spend the minimum and generally we ignore the quality and by and large go by the lowest price. If we handle private funds which may not have constraints like one to go by the lowest price, we may decide to have good quality of material and spend more and in that there is an underlying benefit.

Precisely, the question is when the purpose is served by lower amount of money which takes care of better cost consciousness, why to go for higher spending?. From one angle it is OK, but what about the quality, durability, aesthetic aspect etc. Quality construction of a building with higher investment and building constructed on the basis of the lowest quotation could perhaps be an easy example to quote. Therefore the cost consciousness cannot be a blanket concept. It has various aspects. It has to be exercised with vision and courage for application in different situations and time.

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Teacher Education Curriculum in North-East India

A Comparative Analysis

Nikunja Behari Biswas*

Introduction

Curriculum is the core component of teacher education programme. The development of an appropriate curriculum is indispensable for improving the quality of teacher education that affects the education system in the long run. Teacher education curriculum is a professional investment made to cater to the needs of the society and the individual teacher. Suitable curricular experience would make the prospective teacher worthwhile professional in the society. It is said that no system of education is better than its teachers, because the quality of education depends upon the teachers who serve it. The teachers form an indispensable part of any system of education. If the teachers are to fulfil their obligations as potential nation builders, they must be properly educated professionally.

One of the most vital issues in the field of teacher education is the role of the curriculum of the teacher education programme. The qualities required of the teachers can be achieved to a large degree by designing suitable curriculum. The degree of effectiveness of the curriculum of teacher education depends upon the extent to which the needs and values of our society are met. Our needs do not cover the present needs only. In a developing country like ours, the future needs must also be visualised and met in the light of the social conditions of the time.

Under the pressure of the changing conditions of our society, the necessity of a comprehensive teacher education curriculum has been keenly felt. The Govt. of India constituted the National Council for Teacher Education (NCTE) to advise the Government on matters relating to teacher education. Accordingly the NCTE developed the 'Teacher Education Curriculum – A Framework' in 1978 for different stages. The structure of Secondary Teacher Education Programme of one year duration (Two-semester course of 36 credit hours) contains areas like (A) Pedagogical Theory covering courses such as (1) Teacher and Education in the Emerging Indian Society, (2) Educational Psychology, (3) Special Courses according to the needs and facilities available; (B) Working with the community like (4) the work situation related to course 1,6,7,8 & 9; and (C) Content-cum-Methodology and Practice Teaching including related practical work which covers the areas

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like (5) Core Training Programme Package, (6) Special Training Programme Package-I (Life Science/Physical Science/Social Science/Languages/Mathematics), (7) Special Training Programme Package-II: (Work Experience), (8) Special Training Programme Package-III (Health, Physical Education, Games and Recreational Activities), and (9) Related Practical work. Regarding the worthwhileness of this curriculum, Anand and Padma (1984) observed that there is a general consensus that the NCTE Curriculum attempts to bring out the teacher education from its age-old shackles, putting it on a more progressive path. They have also stated that the All India Seminar on Teacher Education held at Jammu in March 1981, reiterated the need for this change when it recommended that there is an urgent need to implement the National Policy on Teacher Education as framed by the NCTE. Now the question is to what extent this curriculum is followed by the Departments of Education in the universities in India. Mere change in the curriculum and syllabus for the sake of modernization and their revision to make it up-to-date is not enough to achieve the desired goal of teacher education in the country. With it, development of the necessary infrastructure at each university Education Department or its (affiliated) Teacher Education Institute for an effective implementation of the curriculum is of equal importance. Otherwise, all the curriculum reform attempts will go in vain, and result into a futile exercise of the experts. Periodical revision and reform of curriculum and syllabus must be carried out to make it fit for the emerging needs of the country, for the goals of the teacher education and for the contemporary professional world.

Therefore, a thorough inquiry about the practice of the Teacher Education Curriculum developed by NCTE in 1978 for the teacher education institutes/departments of the country is necessary. The present study is conducted with a view to answering certain questions relating to the practice of the above mentioned curriculum in the North Eastern universities which can be presented in terms of the following specific objectives.

Objectives of the Study

(1) To examine whether the curriculum prescribed for Bachelor of Education Programme in the North Eastern universities is according to the recommendations of the NCTE curriculum;

(2) To study how far the courses of the syllabus are in consonance with the suggested content of the NCTE; and

(3) To analyse how further modification is required to cope with the recently developed National curriculum for Teacher Education by NCTE in 1988 and the B.Ed. Curriculum Recommendations of UGC Curriculum Committee.

Methodology

This study is primarily intended to make a comprehensive analysis of the B.Ed. Curriculum of the 4 North Eastern universities — Arunachal University, Gauhati University, Dibrugarh University and North Eastern Hill University. The curricula that are being analysed in the present study have already been in use in these Universities. It has therefore been thought fit to take up a preliminary documentary analysis. The basic documents that have been explored are : (1) Teacher Education Curriculum — A Framework (1978), (2) National Curriculum for Teacher Education: A Framework (1988), (3) UGC Curriculum Committee Recommendations, (4) Gauhati University Regulations and Syllabus for B.Ed.(1987), (5) Dibrugarh University Regulations and syllabus for B.Ed.(1982), (6) Arunachal University B.Ed. Degree Programme (1988), and (7) North Eastern Hill University B.Ed. Programme (1986).

On going through the curricular outline developed by these universities it is found that each of the University Departments of Education has clearly specified the content for each area and courses along with the distribution of time for different subjects. Thus, having explored the approved courses of the above mentioned universities and the recommended courses as given by the NCTE, an attempt has been made to carry out a comparative analysis of the courses outlined by preparing a flow chart and analysis sheet. The analysis has been done mainly in a qualitative fashion.

Criteria for Analysing the Courses

In order to analyse the courses it would be necessary to specify the criteria on the basis of which one could evaluate its suitability. Therefore, an attempt has been made to derive a set of criteria from the Teacher Education Curriculum — A Framework developed by NCTE in 1978 and 1988, and also the Recommendations of the UGC Curriculum Committee for Teacher Education. The curriculum framework of NCTE (1978), for the B.Ed. level, particularly for the secondary school teachers contains the following features :

Objectives of Teacher Education for the secondary stage are in line with the new ten year curriculum. It has given clear direction to the B.Ed. Programme by providing nine specific objectives followed by the structure of

the teacher education for the secondary stage. The detailed course structure has been provided for achieving the objectives of the programme. It has also improved the course outline so that the trained teacher may effectively teach the new curriculum of the ten-year school. The methods and techniques for organising the theory courses as well as organisation of content-cum-methodology and Practice Teaching including related practical work and working with the community have been clearly spelt out by the NCTE Curriculum framework. It has also suggested the possible procedure and techniques of evaluation. The process of Internal Evaluation, Evaluation of Pedagogical theory working with the community, Evaluation of Practice Teaching, Practical work, Tutorial system and introduction of Grade System in evaluation have been suggested in the Curriculum of NCTE (1978).

Comparative Analysis of the B.Ed. Courses Structure of the different universities

The B.Ed. course developed by the North Eastern Hill University (NEHU) contained the clear cut objectives of the programme which are followed by the course of study for achieving those objectives. This university has introduced the following courses : (1) Teacher and Society, (2) Educational Psychology, (3) Education Technology, (4) Problems of Education in India with special reference to North-East Region. In addition to these it has provided six special courses — (i) Adult and Non-formal Education, (ii) Education and Rural Development, (iii) Special Education for the gifted and the Backward, (iv) Educational Guidance and Counselling, (v) School Management and (vi) Population Education. The students have to select any two of these six courses which will be termed as course Nos. 5 & 6. The NEHU Curriculum provides nine courses as teaching specialisation and a student has to offer any two of these courses. These are known as courses 7 & 8. All the courses are designed in a very systematic way. Each course starts with the objectives of the course, and is followed by the content for achieving those objectives.

The curriculum guide also provides that the practical work is divided into two sections viz. (i) Educational statistics, and (ii) Item of practical work consisting of nine areas. Every student shall be required to complete one item work from the list of suggested work in addition to the prescribed exercises in Educational statistics and submit his workbook for evaluation.

Practice Teaching is also compulsory for every student. A minimum of 20 lessons in each of the two teaching specialisations shall be given by every student.

The University Curriculum Guide has given detailed scheme of evaluation for each of the courses. Practical work and Practice teaching will be assessed through grades. Theory courses will be assessed through marks

(Written Examination of 3 hours duration in case of 80 Marks External + 20 Marks for sessional work internally assessed and 2 hours duration in case of 40 marks External Examination and 10 marks internal.)

The course developed and introduced by the Arunachal University is similar to that of NEHU. The Curriculum Guide of Arunachal University (1988) reveals that there are four compulsory courses of 100 marks each and six special courses of which any two are to be taken by the student and each course contains 50 marks. The Department of Education of this University offers seven courses of Teaching specialisations out of which students have to select any two courses — each course contains 100 marks — whereas NEHU offered nine courses. The titles of all the courses are similar to that of NEHU. Only Home Science and Social Studies are the two additional courses. So far practical work and practice teaching are concerned both the Universities have set the same procedure. Evaluation scheme is also of the same pattern.

Gauhati University curriculum (1987) prescribed the following courses : (1) Principles of Education, (2) Educational Psychology, (3) Indian Education in Historical Perspectives, (4) General Methods, School organization and School Hygiene. These four papers are compulsory which are followed by ten contents and methods of teaching school subjects. Out of the ten teaching specializations every student has to offer any two subjects. Further the curriculum prescribed ten additional subjects out of which the student may offer any one of the subjects. The additional subjects offered by the Gauhati University are as follows: (1) Theory and Practice of Pre-Primary and Primary Education, (2) Education and Vocational Guidance, (3) Mental Hygiene and child Guidance, (4) Educational Mental Measurement, (5) Audio-Visual Education, (6) Comparative Education, (7) Continuing Education, (8) Teacher Education, (9) Health and Physical Education, and (10) Population Education. Each of these courses is of 100 marks.

The curriculum provides for Practice Teaching. Each student shall do Practice Teaching in the subject taken up by him from the prescribed school subjects. The number of lessons shall in no case be less than 30. This Practice Teaching is of 100 marks which will be evaluated externally. The curriculum of this University has made provision of internal assessment of 200 marks by providing the following experiences in the syllabus: (i) Practice Teaching, (ii) Preparation of improvised teaching Aids, (iii) Internal Examination and group discussions, (iv) Essay and assignments, (v) Preparation of tests on method subjects (at least 100 items), (vi) one unit plan of a Method subject, (vii) Preparation of annual scheme of work in one subject for a particular

class, (viii) Analysis and improvement upon school examination question papers (at least four), (ix) Critical study of the syllabus and textbooks of one subject for a particular class, (x) collection and analysis of common errors of the pupils of a particular class in a school during practice (Laboratory practical according to the needs of the subjects), and (xi) Work experience and co-curricular activities.

The B.Ed. Course offered by the Department of Education, Dibrugarh University (1982) is mostly similar to that of Gauhati University. The content of the first four compulsory papers of both the universities is the same. Only the title of the first paper is different. Dibrugarh University has developed the first paper by giving the title — Philosophical and Sociological Foundations of Education which is in consonance with the course developed by NCTE. So far teaching specialization is concerned both the universities offered the same ten school subjects and the students shall have to offer any two school subjects. But Dibrugarh University offered only four additional subjects and the students have to take up any one special field, while Gauhati University offered ten subjects. Dibrugarh University offers 200 marks for Practice Teaching and 200 marks for Laboratory Practical or preparation of one complete teaching unit and other practical work.

Each course in compulsory group, elective (methods group) and additional (special field group) contains 100 marks, out of which 60 marks for essay type and 15 marks for short answer type written and 25 marks are for sessional work. The course content is very clearly spelt out (unit wise) and the practical sessional work in each course is stated item wise which is scientifically designed in the syllabus of the Dibrugarh University.

It is revealed from the above analysis of the prescribed curricula of the four universities that the NEHU and the Arunachal University have developed their courses by mentioning the objectives of each of the courses which are followed by the contents for achieving those objectives while Gauhati University and Dibrugarh University did not state the objectives of any of the prescribed courses. Further Arunachal University and NEHU have introduced the additional specialisations keeping in view the NCTE curriculum (1978). Although the two universities have provided scope for working with the community, it is very clearly spelt out. While Gauhati & Dibrugarh University syllabi have given weightage to the content in developing the method subjects by providing clear cut units on content in each school subject along with the teaching methods, NEHU and Arunachal University have not provided any content in the method subjects. So far practical work is concerned the two universities provide the items on statistics and different areas for practical

work. The students have to select only one practical work from the list of practical item. But Gauhati University has made the sessional work compulsory in ten items or areas.

With regard to practical sessional work the syllabus of Dibrugarh University is very systematic. In each of the courses ranging from three to twenty five items have been identified and listed immediately below the content of the course. This type of clear prescription helped the teacher as well as the student to implement and practice. But the remaining three Universities did not make it clear in the course-wise syllabus.

Arunachal University and North Eastern Hill University have adopted the Grade System in their evaluation scheme in Practice Teaching and practical work which is in consonance with the NCTE recommendation (1978). However Gauhati University and Dibrugarh University followed the pattern of marking system in all the courses (Theory & Practical and Practice Teaching).

Soon after the publication of the National Policy on Education (1986) and the National Curriculum Framework for primary and secondary Education, NCERT initiated the exercise of Teacher Education Curriculum Renewal by setting up working groups through NCTE. Subsequently the committee for Secondary Teacher Education developed the courses by reviewing the earlier curriculum framework of 1978 and in the light of the deliberations of the NCTE expert group in 1988, and recommended the following course outline.

The whole programme of secondary stage Teacher Education is divided into four major components. (A) Foundation courses in Emerging India (Educational Psychology). (B) Stage Relevant Specialization Secondary Education and Teacher Functions, A secondary school subject with prior specialization, A secondary school subject/higher secondary education/Primary Education). (C) One Additional specialization as prescribed by NCERT.

If we analyse the courses of all the four universities in the North East in the light of the above mentioned course which is recommended by the NCTE, we find that the course at Arunachal University and NEHU is in consonance with the NCTE course. The only modification required in both the Universities is with regard to practical work and more specification with respect to working with the community. The content of the first paper of Gauhati University requires modification for fitting it with emerging philosophical and socio-cultural training. The Dibrugarh University should introduce more additional specializations like — Educational Technology, Adult Education etc.

All the four universities must give importance to the internship in teaching including field assignment. Since

the B.Ed. programme is a professional and full time course in the universities, semester system should be introduced for effective participation and practice of the content in all the universities. The objectives of the whole programme as well as the objectives of each course should be spelt out every clearly. Programme assessment should be made every year. Follow up studies should be conducted to find out the effectiveness of this teacher education programme. The UGC curriculum committee (1988) has recommended two years duration for B.Ed. Programme. This committee has recommended the curriculum which consists of three parts. Part (A) — Theory course consisting of core subjects like (i) Learner (Nature and Development), (ii) Teacher and Education in Indian Society, (iii) Teaching learning process, and (iv) Section school management; (B) Elective optional subjects consisting of first optional like, (v) Method of Teaching, (vi) Pedagogical Analysis, and second optional like (vii) Method of Teaching (viii) Pedagogical analysis part (B) — Practice which consists of (1) Practice Teaching (2) Practical work (3) Camp (4) Work experience (5) Participation in Co-curricular Activities; Part (C) Internship which consists of three phases — (i) Orienting to internship programme, (ii) observing schools and school system and assisting subject teacher, and (iii) Working as a regular Teacher.

It is obvious from the recommendations of UGC Curriculum Committee that they have given importance to the practice and internship which is lacking in the existing teacher education programme. The courses of the universities under the present study are mostly in line with the course designed by the UGC. Only the duration of course is one year at present. The existing course in all the four universities is mainly for the in-service teacher, although pre-service students are participating in the programme. If the recommendations of the UGC Curriculum Committee are to be introduced in these universities then much infrastructural changes will not be required except the implementation of practical and internship work.

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The Demographic Trap

"While the death rate has been declining gradually, there seems to have occurred a stall in the decline in the birth rate since 1980. This means that India has been in the second stage of demographic transition for four decades. Countries like Indonesia, Republic of Korea and Thailand did not stay for as long as four decades in the second stage. They are moving quickly from the second to the third stage. Does this mean that India has got into the demographic trap? The answer unfortunately seems to be in the affirmative." So observed Hon'ble Shri C. Subramaniam, Governor of Maharashtra, while delivering the Convocation Address at the thirty third convocation of the International Institute for Population Sciences (Deemed University), Bombay. Excerpts

On the two most important fronts in the race to save our planet—restricting population explosion and preventing environmental degradation the world is losing ground. It was Arnold Toynbee who pointed out, "We have been God-like in our planned breeding of our domesticated plants and animals, but we have been rabbit-like in our unplanned breeding of ourselves."

Economists and ecologists differ radically on the effects of population growth on the economics of countries. American economist Mr. Julian Simon, argues that population growth can foster development: "The ultimate resource is people skilled, spirited and hopeful people." More people means more new ideas, bigger markets, bigger production volumes, higher productivity, smaller transport distances.

Thus in the economist's view, if a nation's economy is growing at 5 percent per year and its population at 3 percent, this leads to a steady 2 percent gain in living standards

Relying on economic variables alone, this situation seemed to be tenable, one that could be extrapolated indefinitely into the future. Ecologists looking at biological indicators in the same situation see rising human demand, driven by population growth and rising affluence, surpassing the carrying capacity of local forests; grasslands and soils, in country after country. They see sustainable yield thresholds of the economy's natural support systems being breached throughout the Third World. And as a result, they see the natural resource base diminishing even as population growth is expanding.

Against this backdrop, biologists find recent population trends profoundly disturbing. Accelerating sharply during the recovery period after World War II, the annual growth of world population peaked at about 1.9 percent in 1970. It then slowed gradually, declining to 1.7 percent in the early eighties. But during the late eighties it again began to accelerate, reaching 1.8

percent, largely because of a modest rise of the birth rate in China and a decrease in the death rate in India. With fertility turning upward in the late eighties instead of declining, as some had expected and many had feared the world is projected to add at least 960 million people during this decade, the largest ever increment for any decade, from 840 million in the eighties and 750 million in the seventies.

The record population growth projected for the nineties means that per capita availability of key resources such as land, water, and wood will also shrink at unprecedented rate. Since the total cropland area is not expected to change during the decade, the land available per person to produce our basic staples will shrink by 1.7 percent a year. This means that grainland per person averaging 0.13 hectare in 1990, will be reduced by one sixth during the nineties. And with a projected growth in overall irrigated land of less than 1 percent per year, the irrigated area per person will decline by nearly a tenth. Forest area per person is likely to decline by one fifth during this decade. The 0.61 hectare per person of grazing land, which produces much of the milk, meat and cheese, is also projected to drop by one fifth. Maintaining an improvement in living conditions with this reduction obviously will not be easy.

The economy achieved an impressive over-all growth of 5.5 percent in the eighties. But the fruits of all these achievements were spread thin due to the galloping increase in population and number of poor, unemployed and illiterate continues to swell. Right from the First Five

Year Plan, the assumption about population growth went wide off the mark to upset all expectations about economic justice. The long term perspective of the First Five Year Plan, envisaged in 1950-51, was to double the per capita income in 27 years. Population was expected to grow at 1.25 percent per annum, this was based on the experience of the previous decade 1941-51 in which the population had grown by only 13.31 percent which is equivalent to an annual rate of growth of 1.258. With a population growing at 1.25 per cent per annum, a doubling of the per capita NDP in 27 years would require the NDP to grow at an annual rate of 3.88 percent. "As it turned out", observed Prof. Dandekar, "neither a modest growth of 3.88 percent per annum in NDP was achieved nor the growth in population confined to 1.25 per cent per annum. The perspective of the First Five Year Plan proceed beyond the parameters of the Indian Economy". In the 35 years between 1950-51 to 1985-86, the per capita N.D.P. increased only at the rate of 1.555 per cent per annum. At this rate, it takes 45 years, not 27 years, to double the per capita NDP.

For our country both birth and death rates were high from 1901-11 to 1941-51. The decadal difference until 1941-51 was about 10 or less. Thus, India may be said to have been in the first stage of demographic transition until 1941-51. But from 1951-61 the death rate began to fall rapidly, while the birth rate continued to be high or declined only slowly. The decadal difference between the birth and death rates from 1951-61 has been about 20 or even more. India entered the second stage of demographic transition in the middle of the present century after the decade 1941-51. While the death rate has been declining gradually, there seems to have occurred a stall in the decline in the

birth rate since 1980. This means that India has been in the second stage of demographic transition for four decades. Countries like Indonesia, Republic of Korea and Thailand did not stay for as long as four decades in the second stage. They are moving quickly from the second to the third stage. Does this mean that India has got into the demographic trap? The answer unfortunately seems to be in the affirmative.

What are the factors responsible for India getting into the demographic trap? Although the demographic transition theory does not assign any role to official family planning programmes in reducing birth rates, we may have a look at the performance of the Indian family planning programme. India was the first country to launch an official programme of family planning as early as 1952. During the period 1951-87, almost Rupees 3500 crores have been spent in the programme. The current pace of annual expenditure is estimated at Rs. 600 crores per year or Rs. 44 per eligible couple per year. In spite of the fact that there has been a substantial increase in the programme and expenditure over the years from 1976, the birth rate has been hovering between 30-33 births per 1000 population per year. There appears to be a diminishing return on investments in family planning programme.

One reason is that a high proportion of the "protected" couples belong to the upper age-group of 30-40 years — those who already had three or more children. Although some time ago the programme was supposed to have been revamped so as to target the below 30 age-group — for instance, the emphasis on spacing methods — the extent to which, if at all, the distortion stand corrected is yet to be known.

Another factor that contributed to the persisting high fertility was the low mean age of marriage. It is also not just a coincidence that the percentage of women who marry and have children before reaching the age of 18 is pronounced among the rural and tribal populations where female literacy is abysmally low and the socio-religious customs hold a greater sway than in the urban areas. Thus, the family planning programme in India has been able to arrest only the increase in the birth rate since 1980.

It has been observed by social scientists that when society gets trapped for too long in the second stage of the demographic transition where the birth rate is high and death rate is low with the resultant high population growth rate, ecological deterioration and economic decline occur. Two of the serious consequences of these are falling incomes and reduction in food production.

Prof. Srinivasan and his colleagues in a recent paper, have calculated that at a constant fertility rate of 1986, the population will be 1477 million by the year 2021 and the food deficit gap will be of the order of 122 million tonnes going by the average calorie requirement of a developed country at the average rate of production of years 1970-85 or at least 40 million tonnes by the projected production rate during the Seventh Plan. If the population is to rise at this rate, in the year 2021 for housing an additional Rs. 677 billion will be required over the ideal Net Replacement Rate of 1 by year 2001, Rs. 46 billion will be required for meeting the direct cost of primary and middle level education. Two million more teachers and 0.3 million doctors will be required. The scenario would be really mind-boggling.

Census 1991

The provisional figures of 1991 Census do not indicate any distinct deceleration in population growth during the eighties. The country's population was enumerated at 844 million, which represents an increase of 161 million over the 1981 level.

For a sense of perspective, the decadal increase in India's population amounts to two-thirds of the entire population of the USA. The absolute increase of 161 million dwarfs the size of populous countries like Japan, Brazil or Nigeria. India accounts for as much as 16 percent of the world's population with only 2.42 percent of the total area.

The provisional results clearly indicate that four decades of development have not made any significant dent on the demographic profile of the country. During the decade, the population has increased by 23.5 percent or at an annual rate of 2.11 percent, compared to 24.66 percent or at an annual rate of 2.22 percent in the 1971-81 decade. Though the population growth rate shows a small decline during 1981-91 compared to the earlier years when it was steadily rising, the decline has been very slow and even by 1990 the barrier of 2 percent growth in the population for the country as a whole does not seem to have been overcome. However, the picture seems to be different when we consider the figures separately by states. Kerala, Tamil Nadu and Goa have registered a decadal growth rate of 13.98, 14.94 and 15.96 percent respectively, far lower than the national level of 23.50 and are also the states which have recorded substantial decline in their growth rates compared to the earlier decade. On the other hand, among the large Hindi speaking states of Uttar Pradesh, Bihar, Madhya Pradesh

and Rajasthan (which have been euphemistically referred to as "Bimaru" states), the growth rates continue to remain quite high, with the decadal increases of 25.16, 23.49, 26.75 and 28.07 percent, respectively. These states together constitute almost 40 percent of the India's population and prevalence of high growth in such a large area largely determines the national scene. The demographic differences between the states are accentuating over time and at present in many demographic parameters the large Hindi states are lagging behind by 15 to 20 years. Such demographic polarisation of states into two groups are likely to have political and other repercussions.

The growth rate of metropolitan cities has revealed some surprising trends in this census. The population of Greater Bombay has increased from 8.24 million in 1981 to 9.91 million in 1991 registering an annual rate of growth of 1.84 percent, in comparison with 3.25 percent experienced in the previous decade, 1971-81. This drastic decline in the growth rate of Greater Bombay in the last decade can be largely attributed to the development of various urban agglomerations around Bombay city such as, Vashi, Panvel, Nerul and Kalyan, which are in neighbouring districts of Thane and Raigad and with a large number of Bombay residents moving into these areas. There appears to be a substantial dispersion of Bombay's population into New Bombay and this has been really a laudable achievement by the Maharashtra Government in reducing the rate of growth of population in Greater Bombay. Among the cities, Hyderabad has recorded the maximum rate of growth followed by Delhi and Bangalore. These cities can take a leaf out of the experiences

of Bombay which has been successful in developing residential towns on the outskirts of metropolitan cities.

An important factor that seems to have contributed to the variations in the pace of development among the countries in Asia as a whole, as well as among different states within India, is the status of women. Countries such as China, Korea, Thailand which have progressed faster have all placed greater emphasis on improving the status of women by emphasising female education activities. If the sex ratio of the population defined as the number of females per 1000 males can be considered a rough indicator of the status of women in society, it has widely varied within India from 1040 women in the state of Kerala to 874 in Haryana. Among the developing countries of Asia it has ranged from 1060 females in Korea to 890 in Bangladesh in 1991.

In India the Census of 1991 has placed the literacy rate of population aged 7+ at 52.1 percent — 63.9 per cent for males and 39.4 percent for females in this age. While the percentage of literacy has been going up in India, the absolute number of illiterates has been growing. Between 1951 and 1991 while the percentage of literacy rose from 18.3 to 52.1, the number of persons who are illiterate increased from 300 million to 324 million. The World Bank estimates that at the existing rates of growth of population India will contain more than half the global illiterates by the turn of the century.

Within the country we see wide variations among different states in the literacy level of population. Kerala has the highest literacy rates of 90.6 percent among population aged 7+, with 94.3 percent among males and 86.9 percent among females. All the southern states (ex-

cept Andhra Pradesh) Maharashtra, Goa, Mizoram, Delhi, Chandigarh, and most of north-eastern states, have achieved a significantly high level of literacy (over 60 percent). The large Hindi speaking states of Uttar Pradesh, Madhya Pradesh, Rajasthan and Bihar have literacy rates lower than the national average, both for males and females. For example, Bihar and Rajasthan have the lowest female literacy rates with only 23 and 20 percent of females aged 7 and above being able to read and write.

There is enough evidence now to show that high literacy rates — especially high female literacy rates — are associated with low rates of population growth. Kerala is an outstanding example where high (especially female) literacy rates have gone hand in hand not only with low rates of growth of population but with superior performance in terms of a number of health indicators such as infant mortality rates, death rates, sex ratios and so on. In sharp contrast, abysmally low rural female literacy rates are associated with both high population growth rates and poorer performance in terms of health indicators — as the case of the BIMARU states demonstrates.

Example of Kerala

The impressive achievements made by Kerala state is a demonstration of the salutary effect of the spread of education among the people, accelerating the attainment of development goals. With a high density of population and below national average per capita income, Kerala has achieved the highest life expectancy of 66 years and the lowest death rate for every age group among all states. Furthermore, following 70 years in which its birth rate exceeded that of India as a whole, from 1971-81, Kerala's population growth rate

dropped from 2.26 percent per year to 1.74 percent per year. Today it stands at 1.31 percent per year, much below the population growth rate of the entire country. Most significant of all, Kerala has experienced substantial decline in infant mortality rates. Between 1921-30, its IMR was estimated at 210. Today it stands at an impressive 27 per 1000 births against the national average of 95.

It is evident that levels of achievement in literacy, population growth, life expectancy and infant mortality are inter-related and are also mutually reinforcing. The success of Kerala is mainly attributed to education, especially education of women. The State has recently been declared totally literate. More important is the fact that the literacy percentage for females is 86.93 — one of the highest in Asia.

Having depicted the none-too-encouraging scenario on the population front in the light of the findings of 1991 Census, let me now dwell upon some essential steps that will have to be taken to effectively arrest the population growth. Instead of prescribing vague generalities for making family planning a people's programme, the new Government will have to address squarely the problem. Strategies will have to be redevise to overcome the shortcomings of the approach of the present family planning programme mentioned earlier. One step that may have to be urgently considered may be the adoption of the one-child norm. Many experts are convinced that our population will continue to gallop ahead for some decades if the present two-child norm is not given up early and that much more than mere persuasion will be needed to have the new norm accepted. Enhanced incentives for compliance and strong punitive disincentives for non-compliance will have to be en-

forced to have the new measures accepted. Also the present common policy approach for family planning implementation throughout the country needs a thorough overhaul. The present Census has highlighted the futility of pursuing such a policy. Those larger northern States which have higher than the national average growth rates and constitute 40 percent of the nation's population, require a radically different approach suited to their geographical, cultural and ethnical factors compared to the Southern States having growth rates lower than the national average. A macro-approach will not deliver the goods; there is urgent need to develop area-specific strategies in the overall policy framework.

Another area where the new Government will have to pay attention to find an acceptable and permanent solution to the problem is the development of new technology in contraception. No other country in the world today is facing such a grave problem as we are in respect of population explosion. What we are practicing today in the field of family planning is the "Cafeteria approach". Health workers offer people all methods of birth control developed in other countries, coils, pills, sterilisation etc. and the people are expected to help themselves by availing of counselling. What is direly needed is to develop a universally acceptable, simple and effective new contraceptive or vaccine that is capable of easy and if necessary compulsory administration — something like the small-pox vaccine, the compulsory and universal administration of which completely eradicated the scourge from the face of the planet. For developing such new technology India alone has to take the initiative — for no other country would be interested in solving our problems — and set up

an international research institute and provide all facilities for attracting leading scientists and technologists in the field of contraception and immunology from all over the world to do concentrated research and achieve the much-awaited technological breakthrough in giving contraceptive protection for longer periods at low cost through the uncomplicated and reversible means.

For achieving our goals of socio-economic development, it is very necessary to reach the light of literacy and education among all the illiterate in our country especially our womenfolk. Our freedom movement has shown the crucial role of women in the mass awakening which snowballed into the struggle for independence. All our national leaders from Raja Ram Mohan Roy to Gandhiji were upholders of women's education and women's freedom for self-development. Swami Vivekananda impressed on the nation the urgent need to educate our women and said that as a bird cannot fly on one wing, our nation cannot progress with only our men getting education. Gandhiji had perceived the role of women as forerunners of the social transformation in nation building. He had more faith in women, that they would be able to do this better than men. Involving more and more women in the democratic and economic planning processes at the grassroot level would require change in attitudes which have hardened through passage of time to enable women to get out of the rut in which they have got stuck. Real solutions to women's problems can only be found by involving them in solving their own problems. For example it is not the father or brother but normally the mother who does not allow the girl child to go to

school. She likes the girl to remain at home so that she could help her in the house. It is indeed a vicious circle; it is the illiterate mother who does not allow her daughter to go to the school. Once you cut into that cycle at any point the cycle breaks, for once the girl is educated, she will see to it that her daughter also gets education. Without education and the much-needed change in traditional attitudes, women in India will not be able to break out of the rut. It is here that the Government should take initiative and strengthen voluntary movements especially the women's organisations to find ways of reconciling tradition with the struggle for equal rights in a modern society. For example if girl children are not being sent to school, more girls' schools can be opened with the help of such women's organisations so that the rural women will overcome their prejudices and send their children to girls' schools. The major achievement of the women's movement in India has not been so much in altering the material status of women as improving their own and society's awareness of their needs and rights. For example, women's movements have taken the lead in getting legislations enacted against dowry and other atrocities on women. However, the major and continuing weakness of the women's movement is that it remains largely a preserve of urban and educated women and has yet to reach poorer, rural women. It is here that the new Government should take initiative for organising such movements in the rural areas and develop leadership of women to enable their participation in the democratic process and for securing effective implementation of development programmes and family welfare measures. Providing women with the means of social and economic

self-determination and the access to income and career development is widely acknowledged to be the most effective way of bringing down the fertility level. Since investment in women is crucial to slower population growth, any plan for overall socio-economic development should also have a special and well-integrated component that will enable them acquire their due place.

May I remind you of Swami Vivekananda's stirring words : "The only service to be done for our lower classes is to give them education, to develop their lost individuality. Give them (the poor) ideas — that is the only help they require and then the rest must follow as the effect. Ours is to put the chemicals together, crystallisation comes in the law of nature. Our duty is to put ideas into their heads, they will do the rest. This is what is to be done in India. — This life is short, the vanities of the world are transient, but they alone live who live for others, the rest are more dead than alive."

You my young friends, who are passing out the portals of this great institution should resolve to become live persons in society reaching the message of life and light to the unfortunate brethren who live in the darkness of poverty, ignorance and illiteracy and enable them to find their own salvation. Let me conclude by recalling the moving lines of Rabindranath Tagore who said:

"Into the mouths of these
Dumb, pale and meek
We have to infuse the language of the soul
Into the hearts of these
Weary, worn and forlorn
We have to minstrel the
hope of humanity."

Town & Gown Coordination

The University of Jodhpur set up a Committee to liaise with the industries, commercial concerns and research laboratories in and around Jodhpur for exchange of skill and expertise in various fields and to restructure curriculum so as to suit the needs of the entrepreneurs.

In one of the meetings of the committee broad areas of co-ordination were identified and follow-up steps required to bring about effective liaison between the University and its hinterland were delineated. The University of Jodhpur already has an Entrepreneurship Development Cell (EDC) financed by the Department of Science & Technology, Govt. of India, which has undertaken a number of activities viz., training people in handling agricultural and industrial tools, imparting skill in setting up small cottage industries etc. It was decided that the EDC should diversify and expand its areas of operation in order to undertake training programmes for personnel with a view to getting them absorbed in the industrial network spread in the vicinity of Jodhpur. It was also decided that a six-week lecture/demonstration programme should be arranged for imparting necessary technical skill and know-how about opportunities, challenges, remedial measures etc., pertaining to setting up of textile, guar gum, steel re-rolling, mineral-based industries etc., in Western Rajasthan.

One important area in which the importance of effective coordination between the University and the Industries and Laboratories was

most strongly felt, was the identification of testing facilities in the University. To this end it was decided that testing facilities already existing in the University should be geared up and expanded for meeting the diverse requirements of industries. It was noted that the Department of Electrical Engineering received a sum of Rs.9.00 lakh for setting up a Product Development and Testing Centre for Entrepreneurs from the Ministry of Human Resource Development, Govt. of India. With a view to standardization of various products, it was decided that some selected laboratories other than those in the University may take up testing work as per BIS(ISI) norms and issue necessary testing certificates.

Another area in which the need for bringing about a coordination was most widely felt, was to prepare for a joint University-Industry R&D Project in the field of Energy Efficiency and Energy Conservation. It was decided that the blueprint of such a project be drawn up reflecting infrastructural facilities required for its execution.

Prof. V.R. Mehta, Vice-Chancellor assured the entrepreneurs that wherever necessary, particularly in the discipline of Science and Engineering, necessary reorientation would be given to the educational curricula so that the skills acquired by students may enable them to seek fruitful employment in the industries in and around Jodhpur. The programme of the EDC to train people in pump operation and stone cutting and chiselling and in undertaking programme to train En-

gineering graduates to set up their own industries was highly appreciated.

Algology Institute

An institute for algal studies, to promote academic and applied research on algae, was recently inaugurated in Madras by the eminent scientist Dr. M.S. Swaminathan. Started by Emeritus Professor V. Krishnamurthy, former Head of the Department of Botany in Presidency College, the Institute of Algology aims at popularising the utility of algae in day-to-day life, food production, manufacture of industrial chemicals and pollution control.

To begin with, the institute will develop a central algal herbarium to house various species of Indian algae as dry specimens. A repository of preserved specimens of algae collected from all over India will also be established to make it a national reference collection.

A culture collection of the algae will also be developed and the strains maintained to supply algal cultures for specific requirements of research institutions and laboratories.

As another important application of algae concerns control of water pollution, the institute will carry out research on the role of algae in stabilization ponds for treatment of effluents. In addition, it will concentrate on studies on the uptake of heavy metals, radioactive elements and other toxic substances by algae with a view to develop methods of algal stabilisation of different kinds of waste water.

Speaking on the occasion, Dr.

Swaminathan explained the importance of the coastal regions with the marine organisms, aquaculture and coastal forestry and how people should be able to derive the maximum benefits from these while at the same time make efforts to preserve them. With a 1000-km coastline endowed with some of the finest flora and fauna, Tamil Nadu can do well by utilising these effectively, he said.

Paying rich tributes to Prof. Krishnamurthy, he said more and more specialised institutions like the "Krishnamurthy Institute of Algology," which are non-governmental in nature, should be established.

In his presidential address, Director of the Anna University Institute for Ocean Management Dr. R. Natarajan called upon research foundations and universities to come together and work in different areas of research.

In his welcome address, Prof. Krishnamurthy said the institute would offer consultancy services for algae-based industries and would also conduct summer schools on various aspects of algology.

Course in Film Studies

Chitrabani, the Calcutta based communication centre of St. Xavier's College, an autonomous organisation dealing with the media of communication, has started a one-year course in film studies.

Film studies, a new academic subject in India, comprises the various disciplines dealing with cinema, like theory, aesthetics, history and technique. It also addresses various aspects of the cinema, like the film industry, filmstars, censorship, etc. While sociology and psychology have nurtured film studies at the beginning, now it is mainly the sciences of 'meaning',

like linguistics, semiology and psychoanalysis that provide their concepts to film studies.

The present course develops the syllabus approved by the Calcutta University for B.A. and B.Sc students. Chitrabani has brought to bear on the course its experience of twenty years of teaching about films to Indian students. The present syllabus has been taught over the last two years to a group of enthusiastic students. Some of these students, after obtaining the diploma, have participated in at least two training workshops conducted by Chitrabani for film studies teachers. A panel of teachers has been prepared specially to teach this programme. The teachers will be assisted by an academic council of experts. Shri Satyajit Ray, a founder-member of Chitrabani, is its adviser.

Chitrabani has developed its own approach to film studies — a one-year course to help students deal intelligently with the various types of films.

CSIR Golden Jubilee

The Prime Minister Mr. P.V. Narasimha Rao, recently inaugurated the golden jubilee celebrations of the Council of Scientific and Industrial Research (CSIR) in New Delhi. In his address Mr. Rao called upon the scientific community to redefine its goals to solve problems of the poorest of the poor. He said research in the CSIR had not always been related to the problems of the poor in India and urged the scientists to make indigenous science and technology research "not only relevant but also affordable".

"Science and technology has to be need-based and needs can vary from village to village," Mr. Rao said and added "That kind of microplanning is needed".

Mr. Rao said scientists should ask themselves what kind of technology was good for India and work on research programmes that were suited to Indian conditions and aim at bringing about Indian solutions.

Mr. Rao cited examples of areas where research was required to solve problems that arose in Indian conditions. Among these areas were vaccine technology, agricultural implements and nonconventional energy.

He said vaccines were often ineffective by the time they reached remote villages because the cold chain required to maintain them was often broken. The cold chain could be afforded at many places and scientists should orient research to develop vaccines that would remain effective despite a break in the cold chain.

In the area of agricultural implements he said tractors suitable for small farms of two to five hectares ought to be developed so that a large number of farmers could make use of tractors.

"Are small farmers going to be condemned to using a plough," Mr. Rao asked and said that scientists should look into the economy, the scale, the tools and the research that was required.

Mr. Rao said massive investments could be made in the area of nonconventional energy like solar energy provided scientists achieve a breakthrough.

During the golden jubilee year, CSIR plans to hold six lead conferences and seven conferences in specific areas and produce documentaries on eminent Indian scientists.

As part of the golden jubilee, cash prizes of Rs.100,000 will be awarded to most outstanding contributors in the field of physical

sciences and life sciences.

A popular chronicle of CSIR's achievements is planned for release in January 1992, and a series of popular science books for school children will be brought out during the year.

University of Film Technology Planned

The Tamil Nadu Government proposes to set up a University of Fine Arts and Film Technology in Madras. This was announced by the Chief Minister, Ms. Jayalalitha in the Assembly. She said that an expert committee had been constituted under the chairmanship of the Vice Chancellor of the Madurai Kamaraj University who had also submitted a preliminary report. When established, it would be the first university of its kind in India.

CSIR Awards Announced

The Council of Scientific and Industrial Research (CSIR) recently announced its annual Shanti Swarup Bhatnagar Awards to 12 scientists, the CSIR Golden Jubilee prizes to two scientists and the CSIR Technology Awards to three groups of researchers.

The Shanti Swarup Bhatnagar Award winners are : Dr. Virendra Nath Pandey, Bhabha Atomic Research Centre, Bombay, and Dr. Srinivas K. Saidapur, Karnatak University, Dharwad, in biological sciences; Dr. Biman Bagchi, Indian Institute of Science, Bangalore and Dr. Jhillu Singh Yadav, Indian Institute of Chemical Technology, Hyderabad, in Chemical Sciences; Dr. Sri Niwas, Kurukshetra University, and Dr. Sudipta Sengupta, Jadavpur University, in earth, atmosphere, ocean and planetary sciences; Dr. J.B. Joshi, University of Bombay, in engineering sciences;

Dr. Vikram B. Mehta and Dr. Annamalai Ramanathan of the Tata Institute of Fundamental Research, Bombay, in Mathematical Sciences; Dr. Shashi Wadhwa, AIIMS, New Delhi, in medical sciences; and Dr. Deepak Dhar and Dr. Deepak Mathur, Tata Institute of Fundamental Research (TIFR) Bombay, in physical sciences.

The awards which carry Rs.50,000 in cash, a citation and a memento are given to scientists below 45 years of age for their outstanding research during the last five years.

Dr.G.N.Ramachandran, former professor, Indian Institute of Science, Bangalore, and Dr. C.N.R. Rao, Director, Indian Institute of Science, Bangalore, have been selected for the CSIR golden jubilee awards, instituted this year. The award carries Rs.1 lakh and a medallion.

The CSIR technology awards have been given to 13 scientists in three groups. The award carries Rs.10,000 and a citation to each scientist.

The prize for biological science and technology has been awarded to the group in the National Chemical Laboratory, Pune, consisting of Dr. A.F. Mascarenhas, Mrs. R.S. Nadgauda, Mr. S.S. Khuspe, Mr.P.R. Hendre and Mrs. V.A. Parasharami, for its development of new techniques in plant tissue culture.

The prize for chemical technology has been awarded to the group in the Indian Institute of Chemical Technology, Hyderabad, consisting of Dr. A.V. Rama Rao, Dr. M.K. Gurjar and Dr. M.N. Deshmukh for its development of synthetic drugs.

The prize for materials technology has been awarded to the group in Central Fuel Research Institute, Dhanbad, comprising Dr. S.N. Mukherjee, Mr. S.K. Mazumdar,

Mr. S.K. Das Gupta, Mr. A.K. Moitra and late Dr. A. Lahiri for its development of technology for building bricks from flyash.

IGNOU Programmes on Cable TV

In a novel experiment, the educational video programmes of the Indira Gandhi National Open University (IGNOU) have been linked to all the cable TV Channels operating in Modasa, a small town in the interior of Sabarkantha, one of the backward districts of Gujarat.

The five cable TV Channels operating in Modasa cover practically the entire township.

When approached by IGNOU functionaries, the owners of cable TV Channels responded positively and readily agreed to relay IGNOU's video programmes and that too without any charges.

Now the students, mostly housewives, who do not have time to go to sub-centre for video viewing, are happy to have this opportunity at their drawing rooms.

Man of the Year 1991

Dr. Nirmal Singh of Indian Institute of Technology Delhi has been named as the "Man of the year 1991" by American Biographical Institute, U.S.A. and its Board of International Research, a major and leading authority on biographies of distinguished individuals worldwide, for his "outstanding accomplishments to date in the field of Management Sciences and the noble example he has set for his peers and entire community."

A recipient of the "Research Adviser of the Year 1991" Award by I.B.A., U.S.A. and fellow of several national and international organisations and universities, Dr. Singh attended an International Conference of University Administrators at Enschede, Holland. His paper on

News from Abroad

Striving for Efficiency with Quality

Mr. Alan Howarth, British Minister for Higher Education exhorted the universities to work out a formula for maintaining academic quality while implementing further cost cutting measures. While addressing the annual conference of Vice-Chancellors he said, "Each university must decide how it will achieve improvements. The continuing increase in enrolments shows universities still have spare capacity but I have no doubt further efficiency gains are possible over the next decade as new teaching methods and patterns of organisation are developed."

He said the taxpayer had a right to know what was being provided in return for public funding. "Prospective students and sponsors also have a right to know the quality of the courses on offer. The best safeguard for quality as student numbers grow is to relate funding to objective assessments of quality so that high standards are rewarded and high quality departments and institutions grow."

Increased efficiency measures were outlined by Mr Howarth, including proposals in the higher education White Paper for more intensive delivery of existing courses. Universities should also take a lead from the polytechnic sector in the use of modular course structures to make more effective use of teaching resources. The Government had no intention of imposing a two-year pattern.

The polytechnics had also taken the lead in expanding two-year full-time diploma courses, particularly in vocational subjects. "There is no

reason why universities should not develop similar courses where that is consistent with their mission."

Part-time routes into universities should also be developed alongside teaching only contracts and better use of plant and equipment.

Mr Howarth said he shared the Vice-Chancellors' view that the allocation of research funds should be selective. He said it was not the intention to impose sharp distinctions between types of institutions as selectivity would continue to be applied to individual departments. But increased competition within a cash limited sum would mean some redistribution of funds.

Greening the Curriculum

An Environmental committee headed by Professor Peter Toyne, rector of Liverpool Polytechnic, has been set up by the British Government to develop policies for

"greening" the curriculum and management of further and higher education.

The committee, with 20 members drawn from higher and further education and industry, will identify the environmental skills and knowledge needed by a future workforce. It will assess the strengths and weaknesses of environment policy in higher and further education, before recommending priorities.

The recommendations will be directed not only to institutions but also to examining and validating bodies, and to professional institutions.

Michael Fallon, education minister with special responsibility for environmental issues, said: "It is partly a matter of responding to the need for suitably trained environmental and technology specialists, but just as important is the need to look at the way in which environmental issues are handled across the whole range."

Sports News

Delhi University Wins Maulana Azad Trophy

University of Delhi has won the Maulana Abul Kalam Azad Trophy for the year 1989-90. The second and third positions have been won by Guru Nanak Dev University and Bombay University respectively. This is the third consecutive victory of the University. The trophy was instituted by the Govt. in 1956-57 as an incentive to encourage sport among the universities and colleges.

In 1987-88, Govt. also introduced Prize Money awards for the first three position holders. The winner is awarded Rs. 50,000, the runner up Rs.25,000 and 3rd position holder Rs.10,000. The award, however, is not paid in cash. A university winning any position upto 3rd position is entitled to buy sports equipment from the Sports Authority of India equal to the value of the award won.

A Pioneering Contribution

P.R. Panchamukhi*

Moonis Raza, ed. Higher Education in India: Retrospect and Prospect. New Delhi, Association of Indian Universities, 1991. pp. 193, Rs.250/-.

Higher education in India is caught up in a peculiar dilemma. On the one hand an urgent need is felt to develop higher education still faster in the future, in view of the fast technological advances in the world. On the other hand, in view of the need to achieve universal primary education, more and more resources have to be transferred from higher education to primary education and hence development of higher education has to slow down to be restructured and made more cost effective. These policy decisions obviously cannot be considered in isolation. A historical perspective of higher education, an understanding of the socio-economic processes behind the development of higher education, information about its linkages with the other sectors of economy, etc., would be extremely necessary in order to make any measure of reform more realistic and effective. The book under review, edited by the eminent educationist and analyst Dr. Moonis Raza, is one of the few works with such a perspective. The Association of Indian Universities deserves all the compliments from the observers of the Indian educational science, for

organizing a Conference of Executive Heads of Commonwealth Universities in January 1991, where Indian higher education came under such a holistic focus and where the papers included in the volume under review formed a basis for discussion.

The volume consists of eleven articles, an Appendix giving the basic data about Universities in India, and above all a scholarly preface by the editor Dr. Moonis Raza. The articles can be grouped under four parts; the first part of three studies with a historical perspective, the second of five studies consisting of a comprehensive analysis of Higher Education in Contemporary India, the third, of two studies of special aspects of higher education, and the fourth of an article with a futurological perspective about higher education in India. Written by distinguished scholars in different fields of social sciences, the articles on the whole provide a rich multidisciplinary view of different aspects of higher education in India.

The historical analysis of higher education in ancient, medieval and colonial periods, while giving a broad and quick overview, suggests that detailed regionwise studies are needed to develop a fuller under-

standing of how higher education passed through several ups and downs in different regions. Such regionwise studies would enable us to understand why some regions have remained educationally backward over the period of time.

While analysing the quantitative trends in higher education in contemporary India, the studies show that growth of higher education in India is not too high as compared to that in some of the other developed and developing countries. There is much to be desired as far as the development of different sectors of higher education is concerned. The studies trace the socio-economic factors behind such a lop-sided development. They also highlight how highly inequitous historically has been the development of higher education in India. The regional analysis of higher education, indeed is a pioneering attempt. It for the first time provides a methodology for studying the inter-regional disparities of any aspect of the economy. It also highlights the need for extending this approach to understand the sub-regional disparities also such as among different districts, talukas and villages. Inter-income-group, inter-community-wise disparities across different faculties, sub-regions, etc., would provide a rich information base for any meaningful policy formulation.

Development trajectory and recent developments of higher education analysed in two articles throw for discussion many conflicting, contradictory and subtle aspects of higher educational development in India in recent years which have historical roots. It is an important contribution, the brief analysis only suggests that each of the aspects indicated here need to

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be further researched in detail.

An article on Distance education provides a good analysis of one of the recent developments in the Indian higher educational scene. Ideally, a comparative analysis of distance higher learning and traditional system with respect to quantity, quality, cost, efficiency, equity, etc., aspects would provide further useful insights.

A study of university finances examines certain salient aspects of

financing universities. A study of financing higher education needs to throw light on finances of colleges also. It should also examine not only financing by the institutions of higher learning but also by the beneficiaries from higher education. In this sense, the study suggests the need for a further in-depth analysis of higher educational finances.

The last chapter on a futurological perspective of education, gives

extracts from the Report of the National Commission of Teachers relating to Higher Education.

On the whole, this slim volume is a pioneering contribution providing a panoramic multi-disciplinary view of higher education in India. It makes not only a very useful addition to the current literature on higher education in India, but also distinguishes itself by its unique approach and rich and mature analysis.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
November 10-12, 1991	Seminar on Ancient Indian Mathematics	To focus attention on different aspects and ideas about ancient Indian Mathematics.	Willington College, Sangli	Dr. S. R. Kulkarni, Local Secretary, 5th SUMS Annual Conferenc, Dept. of Maths, Willington College, Sangli-416 415
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on higher education. Among the topics prominently represented are educational sociology, educational planning, educational administration, teaching & teachers' training, examinations, economics of education and country studies. Developing fields of adult education, continuing education and distance education, and educational technology are also well stocked.

The library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of higher education. Files of annual reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to the AIU Library'.

The library receives about a 100 periodical titles on higher education. All these are indexed regularly and a subject list appears every month as 'Current Documentation in Education'. Similarly our column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The library is steadily building up a collection of audio and video cassettes on matters educational and maintains a well appointed Audio-Visual Room equipped with a double deck audio cassette recorder, a VCR and a colour monitor, and an overhead projector.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 10 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Doctoral Theses accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Chauhan, Lal Bahadur. **Material distributions in cosmological models.** BHU. Dr Shri Ram, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

2. Dubey, Om Prakash. **Structures on different manifolds.** BHU. Dr R D S Kushwaha, Department of Mathematics, Banaras Hindu University, Varanasi.

3. Gupta, Devjani. **Categorical investigations of fuzzy topological constructs and their applications.** BHU. Dr A K Srivastava, Department of Mathematics, Banaras Hindu University, Varanasi.

4. Kundu, Soumen. **Homogeneous and inhomogeneous models of the universe.** BHU. Dr T Singh, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

5. Mishra, Avadhesh Kumar. **FPT - In metric spaces.** BHU. Dr Ashok Saxena, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

6. Sanjay Kumar. **Projective & injective modules and their generalizations.** BHU. Dr B M Pandey, Department of Applied Mathematics, Institute of Technology, Banaras Hindu University, Varanasi.

7. Singh, Ajay Kumar. **FPT - In banach spaces.** BHU. Dr Ashok Saxena, Department of Applied Mathematics, Banaras Hindu

University, Varanasi.

8. Singh, Mukti Nath. **A study of generalized polynomial set.** BHU. Dr I K Khanna, Department of Mathematics, Banaras Hindu University, Varanasi.

9. Singh, Vijay Kumar. **FPT - In Hilbert spaces.** BHU. Dr Ashok Saxena, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

10. Srivastava, Krishna Kumar. **Reliability of systems.** BHU. Prof V V Menon, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

11. Tripathi, Surendra Narayan. **Mathematical programming in applicable analysis.** BHU. Prof S N Lal, Department of Mathematics, Banaras Hindu University, Varanasi.

12. Upadhyay, Rachana. **A study of generalized polynomial set.** BHU. Dr I K Khanna, Department of Mathematics, Banaras Hindu University, Varanasi.

13. Veeramachaneni, Padmaja. **Topological & category theoretic aspects of fuzzy sets theory and related areas.** BHU. Dr A K Srivastava, Department of Mathematics, Banaras Hindu University, Varanasi.

14. Vishwakarma, Ram Gopal. **A study in homogeneous and inhomogeneous cosmological models in general relativity and alternative theories of gravitation.** BHU. Dr A Sattar, Department

of Mathematics, Banaras Hindu University, Varanasi.

15. Yadava, Rajesh Kumar Singh. A study of submanifolds of various types of manifolds. BHU. Dr (Miss) Katpana, Department of Mathematics, Banaras Hindu University, Varanasi.

Statistics

1. Gupta, Archana. Some contributions to statistical inference for life time distributions. BHU. Dr S K Upadhyay, Department of Statistics, Banaras Hindu University, Varanasi.

2. Shastri, Vastoskpati. Some inferences for life time models when the observations are censored. BHU. Dr S K Upadhyay, Department of Statistics, Banaras Hindu University, Varanasi.

3. Singh, Samar Bahadur. Mathematical model in demography. BHU. Prof R C Yadav, Department of Statistics, Banaras Hindu University, Varanasi.

4. Singh, Vinay Kumar. Certain Bayes estimators for life time distributions. BHU. Dr Umesh Singh, Department of Statistics, Banaras Hindu University, Varanasi.

Physics

1. Bhattacharya, Bhaskar. Electrodeposition of semiconduction films, its characterisation and device. BHU. Prof S Chandra, Department of Physics, Banaras Hindu University, Varanasi.

2. Chakraborty, Supratic. Solid state ionic materials devices. BHU. Prof S Chandra, Department of Physics, Banaras Hindu University, Varanasi.

3. Ghosh, Sanjay Kumar. Study of ion conducting polymer electrolytes. BHU. Dr P N Gupta, Department of Physics, Banaras Hindu University, Varanasi and Dr R P Singh, Department of Physics, Banaras Hindu University, Varanasi.

4. Gupta, Sushma. Properties of molecular liquids and liquid crystalline phase. BHU. Dr Jokhan Ram, Department of Physics, Banaras Hindu University, Varanasi.

5. Mahesh Narayan. Vibrational studies of polyatomic molecules. BHU. Dr R A Yadav, Department of Physics, Banaras Hindu University, Varanasi.

6. Seth, Tanay. Studies on hydrogenated amorphous silicon films grown at high deposition rate. Panjab. Dr V V Shah, Scientist Incharge, Thin Films and Amorphous Materials Group, National Physical Laboratory New Delhi and Prof K K Srivastava, Department of Physics, Panjab University, Chandigarh.

7. Shaju, K M. Solid State ionic materials and devices. BHU. Prof S Chandra, Department of Physics, Banaras Hindu University, Varanasi.

8. Shukla, Manoj Kumar. Spectra and structure of some biomolecules. BHU. Dr P Mishra, Department of Physics, Banaras Hindu University, Varanasi.

9. Singh, Khundrakpam Saratchandra. Waveguides and fibre optics. BHU. Dr S P Ojha, Department of Applied Physics, Banaras Hindu University, Varanasi.

10. Vikash Kumar. Propagation and modal properties of fibres of various different cross sections and multilayered planar and rectangular waveguides. BHU. Dr S P Ojha, Department of Applied Physics, Banaras Hindu University, Varanasi.

Chemistry

1. Banerjee, Partha Pratim. Enzymes in analytical chemistry: Enzymatic hydrolysis of proteins. BHU. Dr Animesh K Ghosh, Department of Chemistry, Banaras Hindu University, Varanasi.

2. Banerjee, Rakesh Kumar. Studies in biologically active heterocyclic compounds. BHU. Dr R L Gupta, Department of

Chemistry, Banaras Hindu University, Varanasi.

3. Dhuliya, Anuradha. Molecular electronic material. BHU. Dr R A Singh, Department of Chemistry, Banaras Hindu University, Varanasi.

4. Jacob, Mini. Recovery of radioactive elements and precious metal by fixation or sorbents. BHU. Dr Rajendra N Singh, Department of Chemistry, Banaras Hindu University, Varanasi.

5. Jha, Anjali. Synthesis of ligands and their interaction on metal ion in context of pollution abatement. BHU. Dr Lallan Mishra, Department of Chemistry, Banaras Hindu University, Varanasi.

6. Kanchan Bala. Studies on membrane transport phenomena. BHU. Dr P C Pandey, Department of Chemistry, Banaras Hindu University, Varanasi.

7. Kapur, Jatinder. Studies towards the synthesis of fluorosteroids. Panjab. Dr Tejvir Singh, Department of Chemistry, Panjab University, Chandigarh.

8. Mehta, Shalini. Studies on electro chemical sensors. BHU. Dr P C Pandey, Department of Chemistry, Banaras Hindu University, Varanasi.

9. Pothan, Shibu Itty. Thermogravimetric studies of some first transition series metal complexes of thioglycolanilides. Vikram. Dr V M Bhagwat, Reader, Department of Chemistry, Vikram University, Ujjain.

10. Raveendran Nair, P G. Preparation of sub micron Ba To3 by various chemical routes and applications. Kerala. Dr C James, Prof, Department of Chemistry, University College, University of Kerala, Thiruvananthapuram.

11. Said, Mustafa Kamil. Chelation of N S donors with biologically active trace elements. BHU. Dr Lallan Mishra, Department of Chemistry, Banaras Hindu University, Varanasi.

12. Sharma, Anita. Complexation of amide group ligands. BHU. Dr A K Ghosh, Department of Chemistry, Banaras Hindu University, Varanasi.

13. Singh, Priti. Dynamic molecular processes and molecular structure of metal chelate with Mo353. BHU. Dr V D Gupta, Department of Chemistry, Banaras Hindu University, Varanasi.

14. Tripathi, Subhash Chandra. Radiation and photochemical studies of metal in aqueous solution. BHU. Dr J P Mittal, Head, Department of Chemistry, Bhabha Atomic Research Centre, Bombay and Prof S P Mishra, Department of Chemistry, Banaras Hindu University, Varanasi.

15. Usha Rani, C. Proton transfer processes. BHU. Prof S K Sen Gupta, Department of Chemistry, Banaras Hindu University, Varanasi.

16. Varghese, Viju Abraham. Studies on membrane transport. BHU. Dr R C Srivastava, Department of Chemistry, Banaras Hindu University, Varanasi.

17. Vijayalakshmi, S. Synthesis of aminoacids. BHU. Dr R Balaji Rao, Department of Chemistry, Banaras Hindu University, Varanasi.

18. Yadav, Jai Prakash. Partition equilibria in analytical chemistry. BHU. Dr A K Ghosh, Department of Chemistry, Banaras Hindu University, Varanasi.

Earth Sciences

1. Arora, Davinder Kumar. Geohydrological investigation of Ludhiana District with a special reference to soil water interaction and pollution of water in the area. Panjab. Prof A K Prasad, Department of Geology, Panjab University, Chandigarh.

2. Bohare, Rammanohar. Geohydrological studies of Bina

River watershed, District Sagar M.P. HS Gour. Dr A K Shandilya.

3. Bose, Bimal Kumar. **Value imaging of petroleum exploration through quantified imaging technique.** BHU. Mr. Kharak Singh, Deputy General Manager, Oil & Natural Gas Commission, Dehradun and Prof Avadh Ram, Department of Geophysics, Banaras Hindu University, Varanasi.

4. Dev Sharan. **Structure and tectonics.** BHU. Prof S G Karkare, Department of Geology, Banaras Hindu University, Varanasi.

5. Diwan, Prabhat. **Tectonomagnetic events in space and time: A case study of the Bundelkhand Granitic massif, Central India.** HS Gour. Dr P P Roday.

6. Hemwati Nandan. **Structure - Tectonic study in Krol Belt Garhwal Himalaya, U P.** Delhi. Prof P S Saklani, Department of Geology, University of Delhi, Delhi.

7. Jaipon Sunny, A. **Stratigraphy and tectonics.** Delhi. Prof S K Tandon, Department of Geology, University of Delhi, Delhi.

8. Jain, Rajendra Kumar. **Patrography and geochemistry of the Amla granite with reference to Pb-Zn mineralization, District Betul, M P.** HS Gour. Dr R K Trivedi.

9. Jain, Sudhir. **Structural and geotechnical studies of rocks around Kotli Bhel command and reservoir area.** HS Gour. Dr A K Shandilya.

10. Jaiswal, Rama Shankar. **Palaeoenvironment of late cretaceous sedimentary sequences associated with the volcanism in the Narmada Region of Central India.** Delhi. Prof S K Tandon, Department of Geology, University of Delhi, Delhi.

11. Khare, Chandra Prakash. **Geomorphic studies in the Chitrewa River basin with special reference to water management, District Narsimhapur, M P.** HS Gour. Dr A K Shandilya.

12. Pant, Pankaj. **Kinetic analyses and P T conditions during the evolution of the North Almora Shear Zone.** BHU. Prof R S Sharma, Department of Geology, Banaras Hindu University, Varanasi and Dr M Josh, Department of Geology, Banaras Hindu University, Varanasi.

13. Rahul Mohan. **Sedimentology.** Delhi. Prof V K Verma, Department of Geology, University of Delhi, Delhi and Prof S K Tandon, Department of Geology, University of Delhi, Delhi.

14. Rana, Sapna. **Micropaleontological studies of early cretaceous rocks of Jabalpur and Kutch basins, India.** Panjab. Dr R Y Singh, Department of Geology, Panjab University, Chandigarh and Dr S K Kulshreshtha, Department of Geology, Panjab University, Chandigarh.

15. Singh, Nityanand. **Climatology: Special variability of the moisture and thermal fields over India.** BHU. Dr G B Pant, Deputy Director, Head, Climatology and Hydrometeorology, Indian Institute of Tropical Meteorology, Pune and Prof B R Gupta, Department of Geophysics, Banaras Hindu University, Varanasi.

16. Sridhar, R. **Geochemical stratigraphy and age of Eastern Deccan volcanics around Anola, Madhya Pradesh.** Delhi. Dr J P Shrivastava, Department of Geology, University of Delhi, Delhi.

17. Talwar, Ajay Kumar. **Bimodal volcanism and massive sulfide deposits in South Delhi fold belt, India.** Dr Mihir Deb, Department of Geology, University of Delhi, Delhi.

18. Thakur, Gajendra Singh. **Geological and geotechnical studies around Punasa Dam, District Khandwa, M P.** HS Gour. Dr A K Shandilya.

Engineering & Technology

1. Balasubramanian, P K. **Solidification processing, Thermomechanical treatment and structure - property correlation of**

an Al-Zn-Mg-TiO₂ composite. Kerala.

2. Dubey, Ashutosh. **Fine environment pollution studies and associated planning.** BHU. Dr R Nath, Department of Mining Engineering, Banaras Hindu University, Varanasi.

3. Geetha, K S. **Investigation on iron removal by oxygen leaching in slurry bubble column.** Kerala. Dr G D Surender, Head, Process Engineering Division, Regional Research Laboratory, Thiruvananthapuram.

4. Lahiri, Kallol. **Attenuators for travelling wave tubes.** BHU. Dr P K Jain, Department of Electronics Engineering, Banaras Hindu University, Varanasi and Dr R Dwivedi, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

5. Moravej, Zahra. **Artificial intelligence (AI) in bioelectrical signal interpretation.** BHU. Dr R B Mishra, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

6. Roy, Sandeep Kumar. **Characterization on electromagnetic structure.** BHU. Dr P K Jain, Department of Electronics Engineering, Banaras Hindu University, Varanasi and Prof B N Basu, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

7. Singh, Dharmendra Kumar. **Numerical modelling of some mine environmental pollution problems.** BHU. Dr R Nath, Department of Mining Engineering, Banaras Hindu University, Varanasi and Dr B K Srivastava, Department of Mining Engineering, Banaras Hindu University, Varanasi.

8. Singh, Dharendra Bahadur. **Neural networks in control systems.** BHU. Dr R B Mishra, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

9. Singh, Tarun Kumar. **Logical design of fault tolerant digital circuit and systems.** BHU. Prof Raghu Nath, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

10. Suwas, Satyam. **Synthesis, structure and properties of oxide superconductors.** BHU. Dr D Pandey, School of Materials Science and Technology, Institute of Technology, Banaras Hindu University, Varanasi and Dr B B Srivastava, Department of Applied Physics, Banaras Hindu University, Varanasi.

11. Tiwari, Rajat. **Impact of mining and allied industrial activities in pollution of the surrounding environment.** BHU. Dr B K Srivastava, Department of Mining Engineering, Banaras Hindu University, Varanasi and Dr S Ratan, Department of Mining Engineering, Banaras Hindu University, Varanasi.

12. Upadhyay, Narasimha Chenu. **Processing and evaluation of composite materials.** BHU. Prof V V Kutumbarao, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Biophysics

1. Ajaib Singh. **Studies to evaluate the effects of lithium on the thyroid and brain functions of normal and diabetic rats.** Panjab. Dr N K Relan, Department of Biophysics, Panjab University, Chandigarh and Dr D K Dhawan, Department of Biophysics, Panjab University, Chandigarh.

2. Krishna Kant. **Studies on cell surface macromolecules: Methodology and its applications.** BHU. Dr M D Khanna, Department of Biophysics, Banaras Hindu University, Varanasi and Dr A P Josh, Centre for Biochemicals, V P Chest Institute Building, University Campus, Delhi.

Biochemistry

1. Bhattacharya, Chaitali. **Filarial circulating antigens.** BHU. Dr (Mrs) S Rathaur, Department of Biochemistry, Banaras Hindu

University, Varanasi.

2. Gupta, Sonia. **Chemotherapy of filariasis.** BHU. Dr (Mrs) S Rathaur, Department of Biochemistry, Banaras Hindu University, Varanasi.

3. Kamal Preet. **Studies on biomolecules influencing mineralization or demineralization reactions from tamarind, *Tamarindus indicus* L.** Panjab. Prof R K Jethi, Department of Biochemistry, Panjab University, Chandigarh.

4. Labana, Sumet. **Studies on the effect of endosulfan and dieldrin on the rat intestinal structure and function.** Panjab. Dr R C Bansal, Department of Biochemistry, Panjab University, Chandigarh and Dr Akhtar Mahmood, Department of Biochemistry, Panjab University, Chandigarh.

5. Meera, V. **Immunological studies among entero toxins.** BHU. Dr R S Dubey, Department of Biochemistry, Banaras Hindu University, Varanasi.

6. Passi, Sangeet. **Biochemical studies on the interactions between cellular nucleophiles and environmental pollutants.** Panjab. Prof H M Dani, Department of Biochemistry, Panjab University, Chandigarh.

7. Reetu. **Metabolism of membrane constituents in developing rat brain.** BHU. Prof Raj Shankar, Department of Biochemistry, Banaras Hindu University, Varanasi.

8. Richharia, A. **Immunopathologic studies in glomerular nephritis with special reference to HLA typing.** BHU. Dr R S Dubey, Department of Biochemistry, Banaras Hindu University, Varanasi, Dr (Mrs) Usha, Department of Biochemistry, Banaras Hindu University, Varanasi and Dr R G Singh, Department of Biochemistry, Banaras Hindu University, Varanasi.

Biotechnology

1. Rakesh Kumar. **Studies on the effect and different BRMs and tumor cells on the tumozidral activity of microphages and macrophase like cell lines.** BHU. Prof Ajit Sodhi, School of Biotechnology, Banaras Hindu University, Varanasi.

Microbiology

1. Mamta Rani. **Microbial degradation of polycyclic aromatic hydrocarbons (Naphthalene/phenanthrene): Construction of genetically manipulated strains.** Panjab. Dr R K Jain, IMTEC, Chandigarh and Dr R C Sobti, Department of Computer Science, Panjab University, Chandigarh.

Botany

1. Ambasht, Navin Kumar. **Impact of some bioedaphic and climatic changes on selected primary producers.** BHU. Dr (Mrs) M Agrawal, Department of Botany, Banaras Hindu University, Varanasi.

2. Jha, Prakash Bir. **A study of certain ecological processes related to restoration of degraded ecosystem.** BHU. Prof J S Singh, Department of Botany, Banaras Hindu University, Varanasi.

3. Mishra, Arun Kumar. **Genetics of N fixing cyanobacteria.** BHU. Dr D N Tiwari, Department of Botany, Banaras Hindu University, Varanasi.

4. Mishra, Awadhesh Kumar. **Effect of Zn and Cu and their interaction in cellular systems of some economic crop plants.** BHU. Dr B K Roy, Department of Botany, Banaras Hindu University, Varanasi.

5. Mishra, Shashi. **Effect of certain pollution on water plants.** BHU. Prof R S Ambasht, Department of Botany, Banaras Hindu University, Varanasi.

6. Nisha Kumari. **Morphogenetic studies on some tropical fruit trees.** BHU. Dr V S Jaiswal, Department of Botany, Banaras Hindu

University, Varanasi and Dr (Mrs) U Jaiswal, Department of Botany, Banaras Hindu University, Varanasi.

7. Rajendra Prasad. **Effect of Cr & L-thium on cellular system of crop plant & their interaction.** BHU. Dr B K Roy, Department of Botany, Banaras Hindu University, Varanasi.

8. Singh, Rajesh. **Integrated measures for management of fusarium wilt of pigeon pea.** BHU. Prof Bharat Rai, Department of Botany, Banaras Hindu University, Varanasi and Dr (Mrs) D Jariwala, Department of Botany, Banaras Hindu University, Varanasi.

9. Tiwari, Shree Prakash. **Physiology of cyanobacteria.** BHU. Dr A K Rai, Department of Botany, Banaras Hindu University, Varanasi.

10. Yadav, Rama Shankar. **Analysis of air pollution problem around open cast coal mines and its impact on vegetation.** BHU. Dr (Mrs) M Agrawal, Department of Botany, Banaras Hindu University, Varanasi.

Zoology

1. Acharya, K Kshitesh. **External factors in mammalian reproduction.** BHU. Prof C J Dominic, Department of Zoology, Banaras Hindu University, Varanasi and Dr A Krishna, Department of Zoology, Banaras Hindu University, Varanasi.

2. Anantha, V G. **Biostatistical studies of atmosphere - environment.** BHU. Dr M Pandey, Department of Zoology, Banaras Hindu University, Varanasi.

3. Arun Kumar. **Reproductive physiology ovulation, fertilization, embryo development in laboratory mice.** BHU. Dr P L Pakrasi, Department of Zoology, Banaras Hindu University, Varanasi.

4. Das, Uday Sahankar. **Comparative study on the neuro-endocrine regulation of reproduction in different species of birds.** BHU. Dr C M Chaturvedi, Department of Zoology, Banaras Hindu University, Varanasi.

5. Krishnamma, B. **Studies of certain aspects of host preference and reproduction of a few commonly available mosquitoes.** Kerala. Dr V R Vijayalakshmi, Lecturer, Department of Zoology, M G College, Thiruvananthapuram.

6. Maurya, Yogendra Kumar. **Studies on the losses in foodgrains due to insects during storage.** BHU. Dr D Kumar, Department of Zoology, Banaras Hindu University, Varanasi and Dr H N Singh, Department of Zoology, Banaras Hindu University, Varanasi.

7. Prabakaran, V. **Some aspects of studies on reproduction of insect.** BHU. Dr D Kumar, Department of Zoology, Banaras Hindu University, Varanasi.

8. Rana, Ravinder Kaur. **Sub-cellular distribution, molecular structure, enzyme kinetics and regulation of carbamyl phosphate synthetase isoenzymes in ureogenic, freshwater air breathing teleost *H. fossilis*.** BHU. Prof B K Ratha, Department of Zoology, Banaras Hindu University, Varanasi.

9. Singh, Rajesh. **Population genetics of *Drosophila*.** BHU. Prof B N Singh, Department of Zoology, Banaras Hindu University, Varanasi.

10. Srivastava, Kadambini. **Female reproductive physiology in mammals.** BHU. Dr P L Pakrasi, Department of Zoology, Banaras Hindu University, Varanasi.

Medical Sciences

1. Adarsha Kumar. **Studies on amavata and its management.** BHU. Dr K P Shukla, Department of Kayachikitsa, Banaras Hindu University, Varanasi.

2. Chaurasia, Anand Kumar. **Role of khadir and bijaka in**

diabetic foot ulcer. BHU. Prof J K Ojha, Department of Dravya Guna, Banaras Hindu University, Varanasi, Dr S D Dubey, Department of Dravya Guna, Banaras Hindu University, Varanasi and Dr C L N Sharma, Department of Surgery, Banaras Hindu University, Varanasi.

3. Gupta, Bharati. **Further studies on hypoglycemic effect of Bilva.** BHU. Dr K P Shukla, Department of Kayachikitsa, Banaras Hindu University, Varanasi and Prof R H Singh, Department of Kayachikitsa, Banaras Hindu University, Varanasi.

4. Mamgain, Ravindra Kumar. **Clinical study on eczema and its treatment by herboderm (Haridra, Khadir, Kutaj, Arogyavadh, Guduchi).** BHU. Prof D Ojha, Department of Kayachikitsa, Banaras Hindu University, Varanasi.

5. Pandey, Bhanu Shankar. **Molecular basis in carcinoma gall bladder.** BHU. Dr V K Shukla, Department of Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

6. Pandey, Kuldeep Kumar. **Role of Madhya Dravyas in san-**

gyaharan(Anaesthesia). BHU. Prof G C Prasad, Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

7. Roy, Rup Kumar. **Plasmids in health and diseases.** BHU. Prof (Mrs) M Chakravarty, Molecular Biology Unit, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

8. Singh, Manoj Pratap. **Non invasive ayurvedic therapy in management of B P H.** BHU. Prof G C Prasad, Department of Shalya Shalakya, Banaras Hindu University, Varanasi.

9. Singh, Nand Kumar. **Systemic hypertension and/or ischemic heart disease.** BHU. Prof Prabha Avasthi, Department of Medicine, Banaras Hindu University, Varanasi and Dr B V Agrawal, Department of Medicine, Banaras Hindu University, Varanasi.

10. Srivastava, Vijay Kumar. **Standardisation of kriya kalpa therapies with special reference to tarpana.** BHU. Dr K R Sharma, Department of Shalya Shalakya, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

PHYSICAL SCIENCES

Statistics

1. Srinivas Rao, V. **On multivariate distance measures.** Osmania.

Mathematics

1. Basati, Karan Singh. **Some stochastic queueing systems of multiple service channels.** Kurukshetra.

2. Bohare, Arvind. **A study of fixed point theorems in various spaces.** H S Gour. Prof P L Sharma, Head, Department of Mathematics and Statistics, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

3. Das, Sipra. **Intersection digraphs: An analogue of intersection graphs.** NBU.

4. Dasadhikari, Sukumar. **Some theorems and related questions in number theory.** Madras.

6. Dutta, Padum Kumar. **Numerical solution of differential equations governing fluid flow.** Dibrugarh. Prof G C Sarma, Department of Mathematics, Dibrugarh University, Dibrugarh.

7. Mehta, Himali Shvetketu. **Decompositions associated with function spaces and function algebras.** Patel. Dr M H Vasavada, Prof, Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar and Dr (Smt) R D Mehta, Reader, Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar.

8. Patel, Dhaneshkumar Parsottambhai. **On convergence and summability of general orthogonal series.** Baroda.

9. Ramalingam, M. **Baer triple systems.** Madras.

10. Shanthi, Krishnan. **Some anisotropic homogeneous cosmological models in new theories of gravitation.** Andhra.

11. Tiwari, Mahendra Pratap. **Some problems on fixed point theorems.** H S Gour. Prof S K Shrivastava, Department of Mathematics and Statistics, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

12. Venkatesan, P. **A study on survival models and their biomedical applications.** Madras.

13. Wadbude, Ramesh Kumar. **Endomorphism ring of quasi projective modules.** H S Gour. Dr R S Singh, Department of Mathematics, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

14. Yadav, Ram Kirti. **Certain investigations in finsler structures and connections on vector bundle.** BHU. Prof B B Sinha, Department of Mathematics, Banaras Hindu University, Varanasi.

Physics

1. Balakrishnan, K Saraswathi. **Structure, growth kinetics and electronic properties of electrochemically deposited CdS and CdTe thin films for solar cells.** Delhi.

2. Bhattacharya, Rekha. **Non-linear analysis of moderately thick plates: A new approach.** NBU.

3. Borah, Likhon Chand. **Spectroscopic investigation of some biologically important substances.** Dibrugarh. Prof G D Baruah, Department of Physics, Dibrugarh University, Dibrugarh.

4. Das, Tapas Kumar. **Photorefractive two-wave and four-wave mixings in dynamic holography, numerical modeling of amplification and phase-conjugation.** IIT Delhi. Prof Kehar Singh, Department of Physics, Indian Institute of Technology, New Delhi.

5. Ghosh, Biswarup. **Investigation on the physical properties of glow discharge and arc plasma.** NBU.

6. Gill, Amita. **Study of high energy nuclear interactions.** Rajasthan. Dr K B Bhalla, Assoc Prof, Department of Physics, University of Rajasthan, Jaipur.

7. Jha, Ranjana Kumari. **Design analysis and studies on some novel collectors for air, water and space heating.** Jamia. Prof Z H Zaidi, Department of Physics, Jamia Millia Islamia, New Delhi and Prof H P Garg, Indian Institute of Technology, New Delhi.

8. Ponnambalam, U. **Electronic structure, spectroscopic properties, dipole moments and heats of formation of certain heterocyclic aromatic compounds: A molecular orbital study.** Madras.

9. Puri, Rajeev Kumar. **Theory of cluster transfer resonances in heavy ion reactions and the related phenomena.** Panjab.

10. Ramakrishna, K. Studies on some rare earth based exotic materials - nickelides and cuprates in relation to hydrogen storage and high temperature superconductivity. BHU. Prof O N Srivastava, Department of Physics, Banaras Hindu University, Varanasi.

11. Saikia, Budhindra Nath. Propagation of laser beam through the atmosphere. Dibrugarh. Prof G D Baruah, Department of Physics, Dibrugarh University, Dibrugarh.

12. Singh, Yogesh Kumar. Development and characterization of carbon-carbon composites. Kurukshetra.

13. Sudarshan, Mathummal. Bulk elemental analysis by neutron inelastic scattering and efficiency of gamma detectors. NEHU. Dr Raghuvir Singh, Department of Physics, North Eastern Hill University, Shillong.

14. Surendranath, K. Thermoelectric power and resistivity measurements on some quasi-low dimensional charge density wave compounds. Hyderabad. Dr C Bansal, Prof, School of Physics, University of Hyderabad, Hyderabad.

15. Tolpadi, Amita. Effect of X-Ray radiation and high field stress on Mos capacitors. BHU. Dr R S Srivastava, Prof and Head, Department of Physics, Banaras Hindu University, Varanasi.

16. Vinod Prasad. Atomic and molecular processes in the presence of laser field. Delhi.

Chemistry

1. Arora, Sanjiv. Thermal and spectral studies on celluloses and chemically modified celluloses. Kurukshetra.

2. Arulsamy, N. Condensation reactions of copper (II) amino acid complexes and investigations on their products and related systems. Hyderabad. Prof P S Zacharias, School of Chemistry, University of Hyderabad, Hyderabad.

3. Bajpai, Jaya. Studies on addition polymerization. Durgawati. Dr U D N Bajpai, Department of Chemistry, Rani Durgawati Vishwavidyalaya, Jabalpur.

4. Dubey, Rita. Heterocyclic compounds: Synthetic studies on condensed 4-thiazolidinones. Kurukshetra.

5. Gadad, Andanappa Karisiddappa. Sulphur containing heterocyclic compounds of pharmacological interest. Karnatak. Prof C S Mahajanshetti, Chairman, Department of Chemistry, Karnatak University, Dharwad.

6. Gogoi, Prabin Chandra. Studies on the synthesis and chemistry of amino and mercapto triazoles. Dibrugarh. Prof K K Das, Head, Department of Chemistry, Dibrugarh University, Dibrugarh and Dr J C S Katoky, Scientist, Regional Research Laboratory, Jorhat.

7. Khandwe, Milind Kumar. Studies on coordination polymers. Durgawati. Dr U D N Bajpai, Department of Chemistry, Rani Durgawati Vishwavidyalaya, Jabalpur.

8. Mankotia, Anil Kumar Singh. Studies in some photoreactions of schiff bases. Panjab.

9. Masood, Md Athar. Steric effects and geometrical distortions by a new series of ligands on transition metal complexes: Stabilization of their lower valent oxidation states. Hyderabad. Dr P S Zacharias, Prof, School of Chemistry, University of Hyderabad, Hyderabad.

10. Nandanavanam, Venkata Lakshmi. Synthesis spectroscopic and crystallographic studies on some transition metal complexes. Hyderabad. Dr M V Rajasekharan, Reader, School of Chemistry, University of Hyderabad, Hyderabad.

11. Paulus, T John. Study of physico-chemical properties of ternary liquid mixtures using ultrasonic waves. Madurai

12. Pirgonda, Bhimashankar R. Physico-chemical studies on some metal complexes. Dibrugarh.

13. Saikia, Choudhury Nath. High alpha cellulose pulp and cellulose derivatives from fast growing biomass. Dibrugarh. Dr J N Baruah, Director, Regional Research Laboratory, Jorhat and Prof N N Dass, Department of Chemistry, Dibrugarh University, Dibrugarh.

14. Suresh Pal. Studies of proteinases in brain purification and characterization of dipeptidyl peptidase I (DPPI). Kurukshetra.

15. Suriyanarayanan, T G. Chemical kinetics: Kinetics of oxidation of organic substrates by manganese (III) acetate. Madras.

16. Tewari, Neera. Application of Wittig reaction and 1,3-Dithiane formation to aldehydes from alicyclic acid and its derivatives: Their reactions. Delhi.

Earth Sciences

1. Dutta, Mrinalendra Narayan. Contributions to the geology of the Jaintia Group of rocks around Lumshnong, Jaintia Hills, Meghalaya. Dibrugarh. Prof S K Dutta, Department of Applied Geology, Dibrugarh University, Dibrugarh.

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3. Patgiri, Amal Dutta. Hydrogeological and sedimentological studies in parts of Dikhow-Disang Sub-Basin of Sibsagar District, Assam with special reference to ground water resource evaluation. Dibrugarh. Dr K K Prasad, Director, Central Ground Water Board, North Eastern Region, Guwahati and Dr I M Hazarika, Lecturer, Department of Geology, Gauhati University, Guwahati.

4. Pujar, Ganapati Shankar. Geology of the area east of Manoli, Belgaum District, Karnataka State. Karnatak. Dr N W Gokhale, Prof (Retd), Department of Geology, Karnatak University, Dharwad.

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6. Raghuvendra, K S. Mineralogy, geochemistry, genesis and ore beneficiation studies on chromite deposits of Jambore Area, Nuggehalli Schist Belt, Karnataka. Bangalore. Dr A M Pathan, Prof, Department of Geology, Bangalore University, Bangalore.

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1. Agarwal, Mahesh Kumar. Jet-liquid surface interaction and mass transfer during powder injection in liquid bath. BHU. Dr S L Malhotra, Prof, Department of Metallurgy, Institute of Technology, Banaras Hindu University, Varanasi.

2. Bhagade, Sudheer Shiorao. Study of catalysts by ion exchange resins (Esterification reactions). Nagpur. Dr G D Nageshwar, Reader, Department of Chemical Engineering, Laxminarayan Institute of Technology, Nagpur.

3. Bhatia, Rajendra Pal Singh. Computer assisted generation of exact stiffness matrix and fixed edge forces for certain exsymmetric plate and shell elements. IIT Delhi. Prof G S Sekhon,

Department of Applied Mechanics, Indian Institute of Technology, New Delhi.

4. Chaturvedi, R K. **Corrosion of mild steel and its inhibition.** BHU. Dr R S Choudhary, Reader, Department of Applied Chemistry, Institute of Technology, Banaras Hindu University, Varanasi.

5. Dwivedi, J P. **Effect of imperfect bonding on the dynamic response of buried orthotropic pipelines.** BHU. Dr P C Upadhyay, Prof, Department of Mechanical Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

6. Gupta, Laxmikant Madanmanohar. **Optimisation of turbine house structure for 210 MW and 500 MW capacity sets in thermal power station.** Nagpur. Dr M M Basole, Prof, Department of Applied Mechanics, Vishweshwaraiya Regional College of Engineering, Nagpur.

7. Halder, Raghunath. **Kinetics and dynamics of acid-catalysed hydrolysis of acetic anhydride in batch, semibatch and continuous flow stirred tank reactors.** IIT Delhi. Prof D Phaneswara Rao, Department of Chemical Engineering, Indian Institute of Technology, New Delhi.

8. Jagbir Singh. **Synthesis and characterization of polymeric hydrogels for biomedical applications.** IIT Delhi. Dr Alok R Ray, Centre for Biomedical Engineering, Indian Institute of Technology, New Delhi and Dr Harpal Singh, Centre for Biomedical Engineering, Indian Institute of Technology, New Delhi.

9. Krishna Murthy. **Evaluation of road pavements for riding quality.** Bangalore. Dr C E G Justo, Chairman, Department of Civil Engineering and Dean, Faculty of Engineering, Bangalore University, Bangalore and Dr M K L N Shastry, Principal, University Visvesvaraya College of Engineering, Bangalore University, Bangalore.

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INDIAN INSTITUTE OF TECHNOLOGY, DELHI

Hauz Khas, New Delhi 110016

NOTICE FOR ADMISSION

Adv.No. 3/91

Applications are invited for admission to Ph.D. Programme in the Departments/Centres mentioned below for the II Semester 1991-92 commencing from January, 1992. Detailed information will accompany the application form:

1. Ph.D. (Full-Time, Sponsored & Part-Time)

(a) Departments/Centres

- (i) **Engineering Departments:** Applied Mechanics, Chemical Engineering, Civil Engineering, Computer Science & Engineering, Electrical Engineering, Mechanical Engineering and Textile Technology.
- (ii) **Science Departments:** Chemistry, Mathematics, Physics.
- (iii) **Humanities and Social Sciences Department:** English, Psychology and Economics.
- (iv) **Inter-disciplinary Centres:** Applied Research in Electronics, Atmospheric Sciences, Bio-Chemical Engineering, Bio-Medical Engineering, Energy Studies, Instrument Design and Development, Materials Science & Technology, Rural Development & Technology, Industrial Tribology, Machine Dynamics & Maintenance.

(b) MINIMUM QUALIFICATIONS FOR ADMISSION

- (i) Master's degree in Engineering/Technology/Sciences/Humanities in relevant discipline or equivalent with a minimum GPA of 6.75 on a 10 point scale or equivalent (as determined by IITD) wherever letter grades are awarded or 60.00% aggregate marks, wherever marks are awarded.
- (ii) In exceptional cases, candidates with B.Tech degree or equivalent with excellent record (GPA of 7.50 on a 10-point scale or 70.00% marks) or more will be considered eligible for admission.
- (iii) For Ph.D programme in Biomedical Engineering, candidates having a M.B.B.S degree with 60% or more will also be considered eligible for admission.
- (iv) Full-time scholars who do not possess an M.Tech degree in the relevant field or equivalent are to have valid GATE score for Engineering/Technology/Science disciplines or UGC/CSIR fellowship award for Sciences/Humanities & Social Sciences disciplines.
- (v) Sponsored candidates of the general category and Foreign Nationals with Master degree in Engineering/Technology/Science and those candidates with M.A. in English for Ph.D in English in the Department of Humanities and Social Sciences with minimum grade point average (GPA) of 6.25 on 10-point scale or equivalent as determined by IIT Delhi wherever letter grades are awarded or 55% marks in aggregate wherever marks are awarded, may be considered eligible for admission.

RELAXATION

- (i) 5% relaxation in marks or equivalent relaxation of 0.5 in G.P.A. on a 10-point scale may be permitted for SC/ST candidates over general candidates in the minimum eligibility criteria as mentioned at (i) to (v) above for admission of full-time, part-time, sponsored candidates.
- (ii) Relaxation in GPA to 5.75 on a 10-point scale or in marks to 50% may be permitted for physically handicapped persons.

Note :- Only employee of public sector undertakings or Government organisations or private industries (approved by Faculty Boards) with a minimum experience of two years as on 15 Nov, 91 and Defence sponsored officers are eligible as sponsored and part time candidates. Sponsored candidates are required to submit along with their application sponsorship certificate from their employers stating that the candidate would be treated as on duty with his usual salary and allowances and that he will be fully relieved for the period of 3 years. In the case of part time candidates their organisation should be situated within the distance of 50 km from the Institute, and they are required to submit a "No Objection Certificate" from their employers stating that the candidate is permitted to pursue his studies on part-time basis.

SCHOLARSHIP

- (a) Regular students with M.Sc./M.A./B.Tech. or equivalent qualification with valid GATE Score/UGC/CSIR fellowship award will be eligible for scholarship @ Rs.1800/- per month for the first 2 years and Rs.2100/- per month for subsequent years, and
- (b) Regular students with M.Tech./M.E. or equivalent degree will be eligible for scholarship @ Rs.2400/- per month for the first 2 years and Rs.2500/- per month for subsequent years as per rules of the Institute.

2. GENERAL INFORMATION

- (i) 15% Seats are reserved for SC and $7\frac{1}{2}$ % for ST candidates.
- (ii) Some seats are reserved for Physically Handicapped persons.

- (iii) Candidates called for Ph.D. programme will be paid to and from second class railway fare by shortest route. However, this provision will not apply to sponsored and part-time candidates.
- (iv) Hostel accommodation will be available only to full-time students (except to those who are Delhi based) subject to availability.

3. HOW TO APPLY

Application form and information brochure can be obtained from the Dy. Registrar (PGS) by sending application fee of Rs.15/- by a Crossed Bank Draft only in favour of the Registrar, IIT Delhi payable at New Delhi, along with a self addressed envelope (25 cm x 11 cm) affixing postage stamps worth Rs.3.00 and superscribed "APPLICATION FORM FOR Ph.D. ADMISSION". Application forms can also be had from the Counter (Room No.AD-236) against Bank Draft for Rs.15/-. The No. and date of the Bank Draft should be mentioned by the candidates at the appropriate column while subsequently submitting the printed application form/testimonials.

The completed applications should be sent by the candidates direct to the Dy. Registrar (PGS), IIT, New Delhi-110016. Those who wish to apply for admission to more than one Department/Centre, should make separate application with prescribed fee.

Date for commencement of supply of application form : 14th October, 1991

Last date for supply of Application Forms

a) By post : 4 Nov.1991 (Monday)

b) At counter : 15 Nov.1991 (Friday)

Last date for receipt of completed application forms : 15 Nov. 1991 (Friday)

Deputy Registrar (PGS)

Postgraduate Institute of Medical Education & Research Chandigarh

ADMISSION NOTICE NO. 22/91 (Acad)

Applications, on the prescribed form are invited for the following post-doctoral/Postgraduate courses and Ph.D. programme for the academic session starting from 1st January, 1992:-

I. SENIOR RESIDENTS :- 11 FOR DM/M.Ch. courses mentioned below :- DM Courses :- Cardiology-1, Clinical Pharmacology-1, Gastroenterology-2, Neurology-2, Pulmonary Medicine-2

M.Ch. Courses :- Neuro-Surgery-1, Plastic Surgery-2

a) A few seats may be available for sponsored/deputed candidates for D.M. courses in the subjects mentioned above as also for Endocrinology & Nephrology and M.Ch. courses in Cardiovascular & Thoracic Surgery, Paediatric Surgery and Urology.

b) Upper age limit on 1.1.1992 :- Not more than 35 years for general candidates and 40 years for candidates belonging to Sch. Castes/Tribes and for ex. servicemen and Commissioned Officers including E.C.O./S.S.C.O's who have rendered atleast 5 years military service and are released on satisfactory completion of assignment. No upper age restriction for deputed/sponsored candidates.

c) Candidates due to appear in MD/MS examinations during Nov- Dec., 1991 can also apply. They will be admitted to the entrance test only, if they furnish the result of their examination from the University concerned atleast a day before the entrance test.

II. Ph.D. PROGRAMME

Vacancies exist in the following departments :-

Anaesthesia, Biochemistry, Biophysics, Cardiology, Endocrinology, Experimental Medicine, Gastroenterology, Haematology, Immunopathology, Medical Microbiology, Neuro Surgery, Paediatrics, Parasitology, Pharmacology & Psychiatry (including Clinical Psychology).

III. M.Sc. PHARMACOLOGY :- 3 seats : One seat reserved for candidates belonging to Sch. Castes/Tribes.

IV. FIRST YEAR JUNIOR RESIDENTS FOR MDS COURSE IN THE SPECIALITY OF PEDODONTIA AND PREVENTIVE DENTISTRY :- 2 : One seat reserved for candidates belonging to Sch. Castes/Tribes.

GENERAL INFORMATION

1. For all courses, where MBBS/BDS/or MD/MS is an eligibility requirement, candidates who have made more than one attempt (i.e. have more than one failure, compartment or re-appear) during their MBBS/BDS courses are not eligible. However, those belonging to Sch. Castes/Tribes with upto two attempts in their MBBS/BDS career will be eligible.

2. Those applying for the reserved seats must append, with their applications, a certificate from the District Magistrate concerned in support of their claim. No other certificate will be entertained.

3. The number of seats wherever indicated is provisional and is subject to change without prior notice.

4. The application must be accompanied with non refundable fee of Rs. 60/- in the form of postal order/bank draft drawn in favour of the Director for each of the courses mentioned above. A candidate applying for more than one subject/course is required to submit separate application, complete in all respects, for each subject/course.

5. Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 20/- at the counter from 10.30 AM to 11.30 AM on all working days and from 2.30 PM to 3.30 PM on all working days except Saturdays or by post for which the request be accompanied with a self addressed envelope size (23x10 cms) bearing postage stamps of Rs. 4.50 and crossed postal order for Rs. 20/- drawn in favour of the Director. Money orders are not accepted.

LAST DATE FOR THE RECEIPT OF APPLICATIONS IS 11th NOV. 1991.

12/11

O.P. Sharda
REGISTRAR

6 NOV 1991 ISSN-0566-2257
O. P. T. R. MYSORE

University News

MONDAY, OCTOBER 28, 1991

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4. Application forms and Information Brochure will be supplied against payment of Rs. 15/- (for Ph.D.) and Rs. 35/- (for M.Tech.) (non-refundable) by Demand Draft in favour of IIT, Bombay, enclosing self-addressed stamped envelope (postage of Rs.3/- for Ph.D. and Rs. 2/- for M. Tech.) size 27 cm x 12 cm superscribed 'APPLICATION FORM FOR PH.D./M.TECH' (*write the appropriate title on the envelope). Send separate Demand Draft and envelopes in case both are required.

5. i) Supply of forms begins on 7th October 1991.

ii) Last date for issue of forms and receipt of completed application forms: 11th November 1991.

(Office Counter will be opened between 10 a.m. and 12.30 p.m.; and in the afternoon 2.30 p.m. and 5 p.m. from Mondays to Fridays).

6. Eligible candidates will be called for test/interview on 2nd and 3rd December 1991. Candidates finally selected will have to pay fees on 23rd December 1991 and join on 26th December 1991. Candidates who have appeared for qualifying degree examinations but whose results are not declared yet are also eligible to apply. Seats are reserved for candidates belonging to SC/ST as per rules applicable to such categories of students.

Deputy Registrar(Academic)

IIT, Bombay-76

UNIVERSITY NEWS

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Opinions expressed in the articles
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Editor :
SUTINDER SINGH

COUNSELLING C. F. T. R. I., MYSORE

An Imperative Academic Exercise

R. M. Chidambaram*

Counselling is an accepted academic activity but not a widely practiced one in Indian teaching institutions. Counselling assumes greater significance today in the learning centres at the higher level due to the following reasons :

(1) Aspirants for higher learning are ever increasing. But the available facilities are more or less constant. At this juncture, identification of real aspirants and directing others to take up suitable avenues have become imperative. This onerous responsibility can be executed effectively through counselling.

(2) After successfully completing the programmes in the institutions of higher learning, many have to wait for a long time for suitable avocations. This has created frustration in the minds of youngsters which may make them involve themselves in undesirable and unproductive activities. Such frustrated youngsters' talents can be tapped for productive ventures only through timely counselling.

(3) As the cost of living is continuously rising, many parents find it very difficult to make both ends meet. It becomes a necessity in the middle class families that both of them have to go in for employment. The financial stress may not allow many parents to concentrate on the problems of their children. Students may not be inclined to expose their problems of adolescence to their parents. Problems are mounting. But the parents' involvement is not comparable. Counselling by teachers has a telling effect to bridge the gap.

(4) Even today, in many parts of the country, students desirous to take up higher education are first generation learners. Hence parents may not be in a position to guide them properly in academic pursuits. Such students are longing for guidance which teachers can take up in the name of counselling.

(5) Scope and opportunities of a programme at the university level are to be highlighted to learners. This is possible only for course teachers because they know the course content and the calibre of each and every student. Periodical counselling by teachers will certainly shape the learners in a systematic way. Ultimately such learners can take up their avocations with courage and confidence.

(6) Every class has a set of 'below-average' students. This is inevitable in a developing country like India. Such students have lot of inhibitions to clarify their doubts in the classrooms. Shyness, language deficiency and peers' criticism may act as barriers for them. These students require special and individual attention. Unfortunately these weaknesses of students have been capitalised by few teachers in the form of private tuitions for which they are charging exorbitant fee. Many students may not avail of the facility of private tuition due to its prohibitive cost. Counselling will certainly help the students of this nature.

(7) Anti-social elements, and at times politicians, try to exploit the student power to achieve their personal goals. Many a time students fall a prey and indulge in violence and vandalism due to lack of maturity and wisdom. This should be stopped at any cost. Persistent attempts of

(Contd. on page 11)

*Professor and Head, Department of Bank Management,
Alagappa University, Karaikudi - 623 004, Tamil Nadu.

IS A UNIVERSITY AN INDUSTRY?

N.L. Mitra

The Industrial Disputes (Amendment) Act 46 of 1982 has changed the very content of the definitional structure of the term 'industry' and has clearly excluded: (1) Any agricultural operation unless it is integrated with any other predominant activity included specifically in the industrial activity; (2) Hospitals or dispensaries; (3) Educational, scientific, research and training institutions; (4) Institutions engaged in charitable, social or philanthropic services; (5) Khadi or village industries; (6) Sovereign functions of the government; (7) Domestic services; (8) Professional bodies with less than ten employees; and (9) Any activity carried by a cooperative society or a club or body of individuals not employing ten or more employees, from the term 'industry'. There is reason to believe that the observation of the Supreme Court of India in *Bangalore Water Supplies and Sewerage Board v Rajappa*¹ in so far as restricting the definition by suitable legislative measures, has been taken care of in the aforesaid Amendment Act of 1982. The Act has been published in the Gazette of India on September 1, 1982².

In spite of the statutory prescription, the decisional law still remains conflicting and confused. In *Miss A Sundarambal v Government of Goa, Daman & Diu and others*³, the appellant, Miss A Sundarambal was appointed as a teacher in a school conducted by the Society of Franciscan Sisters of Mary at Carazalam, Goa. The Management terminated her service by a letter dated April 25, 1975. She took up the matter with the Conciliation Officer. The Conciliation proceedings failed. On receipt of the Report the Government considered the question whether the matter could be taken up for adjudication under Sec.10(1)(c) of the Act but concluded that the teacher was not a workman and did not do so. A writ petition was filed by the party in the High Court, against whose decision the matter was taken up for consideration by the Supreme Court under a special leave petition. Two issues that were raised were (1) whether the educational institution was to be considered as an industry, and (2) whether the teacher was a 'Workman'.

Is an education institution an industry?

The first case on the issue was *University of Delhi v Ram Nath*⁴. In that case, the Supreme Court of India

* Professor of Law, National Law School of India University, Central College Campus, Bangalore - 560 001.

held that educational institutions would not come within the term 'industry' as defined in Sec.2(j) of the Industrial Disputes Act, 1947 in disputes between the employee and the management of the institution. In deciding the issue, the Court, perhaps, relied on the classical notion of 'education' and came to the conclusion that 'institutions which were predominantly engaged in teaching could not be considered as industries' within the meaning of the expression in Sec. 2(j) of the Industrial Disputes Act, 1947. As such, Mr. Justice Gajendragadkar in that case did not distinguish the nature of work of the employee of the institution. The matter again came up before a larger Bench of the Supreme Court of India in the *Bangalore Water Supplies case*.⁵ In that case, Justice Krishna Iyer took a different test, i.e. the 'test of services'. According to him, "the predominant nature of services and the integrated nature of the departments as explained in the *Corporation of Nagpur* (AIR 1960 SC 675), will be true test". The majority of the Court came to the conclusion in this case that, "where a complex of activities, some of which qualify for exemption, others not" would nevertheless be considered as an industry.

The Court in *Miss A Sundarambal*⁶ relied on the decision in the *Bangalore Water Supplies*⁷ and concluded "educational institution has to be treated as an industry".

Thus employees of the universities who could be called as workmen would have to be given the facilities extended under the Industrial Disputes Act, 1947 as amended upto date. That is not what is difficult to explain. But what is difficult to understand is the intention of the Government in introducing the Amendment Act, 1982. In fact 1982 Amendment Act was further amended in 1984. One of the amendment was amending Sec.1(2) of the 1982 Act which concerns enforcing notification. 1982 Provision was:

"It (i.e. the Amending Act, 1982) shall come into force on such date as the Central Government may, by notification in the official Gazette, appoint".

The provision was amended by Sec.6 of the 1984 Act stating :

"in Sub-section(2) of Sec.1, after the words "by notification in the official Gazette, appoint", the

words, "and different dates may be appointed for different provisions of the Act" shall be inserted'.

Thus the amendment suggested that the Central Government has taken the power of implementing the Amending Act, 1982 in parts. Until it does notify replacement of original definition of 'industry' specified in Sec.2(j) as amended by Sec.2(c), universities and other educational institutions would continue to be covered by the word 'industry'. If that remains to be the intention of the Government, one may naturally wonder as to why did it introduce the Amendment in 1982 at all. If a provision is not brought into force in the course of long nine years, one can certainly wonder about the wisdom of making such a legislative piece.

Is a teacher a workman?

Delhi University case did not distinguish various types of employees of the University holding that a University is not itself an industry and therefore it was not necessary to examine whether any type of employees in the University can be called as workmen. Now that a university is included within the term of industry, it is necessary to examine as to who can be termed as workman in the staffing of an academic institution. Mr. Justice Venkataramiah in *Sundarambal* observed, "In order to be a workman, a person should be one who satisfies the following conditions:

- (i) he should be a person employed in an industry for hire or reward;
- (ii) he should be engaged in skilled or unskilled manual, supervisory, technical or clerical work; and
- (iii) he should not be a person falling under any of the four clauses, i.e. (i) to (iv) mentioned in the definition of 'workman' in Sec.2 (s) of the Act".

After examining the need of the definitional coverage of the term workman, the learned judge observed, "We are of the view that the teachers employed by educational institutions whether the same institutions are imparting primary, secondary, graduate or postgraduate education, cannot be called as workman.....". The court further observed, "Imparting education which is the main function of teachers cannot be considered as skilled or unskilled manual work or supervisory work or technical work or clerical work. Imparting of education is in the nature of a mission or a noble vocation. A teacher educates children, he moulds their character, builds up their personality and makes them fit to become responsible citizens. Children grow under the care of teachers. The clerical work, if any,

they may do, is only incidental to their principal work of teaching". As such the Court rejected the plea of the appellant that she was a 'workman' and so was entitled to all privileges extended under the Industrial Disputes Act.

A teacher is, therefore, not a 'workman'. He is, therefore, denied of the pro-active and beneficial application of Industrial Disputes Act in matters of dispute between him and his institutional management. A teacher cannot avail of the opportunity of inexpensive, quick and neutral intervention in case of injustice inflicted on him. His only forum of action is a long civil litigation or in some cases a loop of writ application.

While deciding that an educational institution is an industry, the 'test of service' is used in a situation where a complex of activities are carried on, some exempted and some are not. Why then cannot be same principle be applied in case of including the teacher within the definitional limit of 'workman' when a teacher's job also includes some clerical, some supervisory and some manual work! Maybe that a part of his job, a major part, concerns intellectual work which does not fall strictly within the job of a 'workman'. In many developed countries of the West, a teacher is considered as a 'workman' and he is entitled to all advantages of the quick and inexpensive dispute settlement provision of the Industrial Disputes Act. A teacher is not covered under the Service Tribunals nor under the disputes settlement machineries under the Industrial Disputes Act. He is neither there nor here!

University clerical staff, watch & ward staff, technical staff, ministerial staff and administrative staff drawing salary below rupees sixteen hundred per month can take the advantage of Industrial Disputes Act. The academic and research staff are outside the purview. The two plea can be, that the income level be raised to thirtysix thousand per annum and that the academic and technical, research staff be also included in the term workman until a separate Educational Service Tribunal is constituted.

Notes:

1. AIR 1978 SC 548
2. Part II - S.I. Ext. PI (No.42)
3. AIR 1988 SC 1700
4. AIR 1963 SC 1873
5. *Supra* note 1
6. *Supra* note 4
7. *Supra* note 1

[The need for a forum where the teachers can have quick settlement of their service disputes is quite legitimate. The Association of Indian Universities has

been persistently advocating that such a forum could only be the Central (National) and State Education Tribunals (See University News, June 17, 1991; March 23 and March 30, 1987), which ought to be constituted at the earliest.

The Association has not supported the treatment of teachers as workmen for the very reasons mentioned by Justice Venkataramiah (and cited in this article). To ensure that universities are not treated as industry and teachers as workmen, the notification ought to be issued by the Central Government forthwith under the Industrial Disputes (Amendment) Act 46 of 1982. The Association has made repeated pleas to the Government on this issue.

The Association is also not in favour of the service disputes of teachers being decided by the CAT or State

Administrative Tribunals, for the reason that they are meant to handle the service matters of government servants and have been constituted accordingly. The Supreme Court too in H.P. University v. Jeet Ram Thakur and others C.A. no.1820 of 1988, has recently expressed its mind that employees of the university would not fall under the jurisdiction of the H.P.State Administrative Tribunal. The Association holds the view that for a proper appreciation of the academic ethos, academic norms and conventions for appointment, promotion and evaluation of academic work and worth of a teacher, it is necessary to have separate tribunals differently constituted (of the best judicial and academic elements), to decide the disputes relating to their service matters appropriately. Such tribunals should really deal with all university and college disputes. — Editor]

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
November 10-12, 1991	Seminar on Ancient Indian Mathematics	To focus attention on different aspects and ideas about ancient Indian Mathematics.	Willington College, Sangli	Dr. S. R. Kulkarni, Local Secretary, 5th SUMS Annual Conference, Dept. of Maths, Willington College, Sangli-416 415
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry

Vocational Education and Manpower Development

Kailash Chandra Das*

Introduction

The main purpose of education in any society is to provide such experiences to the child as would enable him to live an individually satisfying and socially useful life. Education is an individual human need, and a human right; education is the State's need too and not the State's gift. And yet a sizeable part of the educated are unemployed and only 352 million people are literate out of 844 million of total population of India as per 1991 census. The mad rush for the often unproductive higher education has been due to a myriad of identifiable factors which may include the lack of employment opportunities after the school education on the one hand and the lack of employability of the product on the other obscuring and defying the cause and effect analysis (Mishra, 1984). We have been demanding that the educational programme must be relevant to the needs of the society. This would require that the community of teachers in every institution take interest and assess the manpower needs periodically both in terms of the region and the country and frame the curriculum accordingly. Various committees and commissions on Indian education have deliberated over the concepts and modalities for implementation of vocational education for many years from Woods Despatch (1854) to National Policy on Education (1986). Similar view was also expressed by Prof Yash Pal that vocational training should be made a part and parcel of the entire educational process right from school to college and university stage, and should be intrinsically integrated with the educational system of the country as such. The term 'Vocational Education' connotes systematic training or technical knowledge in a vocation given to the students intending to go for gainful employment in recognised occupations or for self employment. It also includes guidance and counselling related to the occupations.

Scope and Importance

The introduction of vocational education marks a deliberate and drastic departure from the conventional education under which literacy and work are kept apart from each other. Educational thinkers from Rousseau onwards have stressed the importance of work in education urging that 'all lessons should be given in action rather than in words'. Similarly, the Gandhian principles make work, particularly manual labour, the focal point of educational activity. The world of education

should find direct relevance and linkage with the needs and requirements of the world of work. There should be effective and continuing interaction between education and productive work. Education with the vocational aim in the foreground will prepare each individual for an occupation which, in the words of John Dewey will balance the distinctive capacity of an individual with his social service. Karl Marx also expressed the idea that vocational education leads to full development and maturity. Jawaharlal Nehru expressed the same sentiment when he said, "far reaching changes in the existing educational system are absolutely essential for achieving the national aims and social objective of free India and, in particular, to train the right type of personnel for the speedy execution of the development plans." He further said, "we want a society in which everybody is a producer in some way or the other. Since everyone is a consumer he must be a producer also. And if he is to be an effective producer he must know his job well by learning it well. We want first rate men at the top but we want everyone to be good at the particular job he does. If that is our objective, then our whole training must be aimed at that. It should be ideological training, intellectual training, as well as physical training."

Right type of vocational education will redress the problem of occupational maladjustments. The vocational stream of education will generate a spirit of initiative and enterprise, self-reliance and self-confidence through earning capacity and banish a feeling of helplessness. It will instil dignity of labour in our land as it is in other advanced countries. Education cannot create employment, it can only create persons fit for employment. Whereas vocational education renders it feasible for an individual to get a job or to be self-employed. Vocational education, therefore, seems to be top priority of the new National Education Policy. Worried at the growing unemployment in the country, due to what has been called a "dysfunctional relationship" between education and work linkages, the National Education Policy seeks to re-establish and strengthen this link. The solution to the problem of unemployment lies in (a) developing a proper economic strategy which will make use of the country's educated manpower resources, and (b) developing a methodology for manpower planning, which will keep the educated manpower supply and demand in balance. Manpower needs have to be carefully assessed before a meaningful system is devised and implemented. In this context, imparting vocational skills to college students in order to increase their employability assumes importance. It is apparent that vocationalisation of education is not to

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attract less intelligent or mediocre students, but to impart training to each and every individual of society, right from primary to university stage to make him employable and fit for the life he has to lead.

Issues and Problems

Despite the best efforts made at all levels from the government to the public, the pace of progress in educational reforms in general and vocationalisation of education in particular, has been dismal. Vocationalisation has not grown appreciably for many reasons ranging from the cultural prejudice of looking down upon people working with the hands to the poor linkages between vocational stream and industry. Owing to its poor planning, these courses have become dull and monotonous and seldom manifest their true character. As envisaged in the National Policy on Education, attempts have been made to give a vocational bias to the entire education system. The initial objective of the Ministry of Human Resource Development was to start schemes to make vocational education available to 10 per cent of all secondary school students by 1990. By 1955, it would be extended to about 25 per cent students. But the results are discouraging, at the end of the year 1990, the enrolment in the vocational stream is very poor.

In India, vocationalisation of education has now become one of the priority areas of education. However, it came about to be recognised only in the late seventies and by now, about 25 States/Union Territories have introduced the vocational courses relevant to the socio-economic set up of the area. It is time to look into the causes of our failure in spite of expending substantial amount of Rs.125.95 crores. We are far behind the target of NPE, 1986. In most of the States the percentage of students who are going into vocational stream is less than 5 per cent of the total enrolment at +2 level. The programme of vocationalisation of education suffered mainly due to indifferent attitude of the state governments and principals at school level (Venkateswarlu, 1991). State budgets generally have no or very little provision for vocational education. Central Government giving grants to the States and Union Territories to implement vocational education under various heads such as for construction of workshops, purchase of equipments, making survey of vocational education, for teachers training and preparation of textbooks are not utilised, rather misutilised for other purposes. It has been also reported in the Press that various State governments lack interest and sincerity in utilising the grants given by the Central Government to impart vocational courses in their States. Besides, the students have no interest in taking up vocational education, as it has been introduced in some States without advance planning for employability of vocational pass-outs and their professional growth and career advancement. Moreover, lack of adequate infrastructure in

schools and colleges for introducing suitable vocational courses, dearth of suitable instructors and regular teachers, lack of instruction materials and above all the stiff attitude of our universities to keep the old academic and professional courses intact have contributed to the unpopularity of vocational courses. It is also seen that many states have only employed part-time instructors on daily wages. Syllabi are also not framed prior to the introduction of vocational courses. Lastly, many have rated vocational stream as subordinate or inferior because of lower marks or grades required for admission on the one hand and absence of vertical mobility for students pursuing vocational courses.

Suggestions

Vocationalisation of education should not be considered mechanically but with due regard to the concept, vision and philosophy of education. There is an urgent need to update vocational education stream so as to make it attractive.

Vocationalisation is to be taken up with the twin objective of diversification and flexibility. The courses have to be diversified and made more flexible, to accommodate those who want to go for higher education and those who want to stop their education and enter the employment field. Higher secondary education at XI and XII standards should be divided into academic stream and vocational stream on a 50:50 basis of enrolment. Atleast 50 percent of the vocational stream students should be trained for self-employment and vocational stream should be directly linked with the demand. The world of education should find direct relevance and linkage with the needs and requirements of the world of work (John, 1989).

Close school industry partnership has started taking roots in China, South Korea, Japan and also some other countries. In India, sporadic instances of school industry collaboration are visible particularly in Delhi and in States like Karnataka, Maharashtra and Tamil Nadu. School industry linkage refers to that part of the teaching which takes place in a real job situation under the supervision of the teacher and the guidance of an expert from the industry. The aim is to develop the proficiency and self-confidence of the students. The successful leaders in the industries or the competent workers should come and train the new entrants who are admitted to the vocational institutions. Similarly, the total planning and executive responsibility should rest with a person who has been successful in the line not by his degree, but by his work and actual experience of rising to the top of the vocational ladder. In addition to this, it is suggested that because of resource constraints in terms of both men and material, vocational programmes have to share the facilities of professional organisations besides engaging part-time staff. To enhance the acceptability of and to provide respectability to the voca-

tional courses, participation of user agencies and community involvement in the process is a must.

Again, it will never succeed if the students going in for vocational courses are considered to be second class citizens. Some percentage of seats in professional colleges should be reserved for them and they should be encouraged to take them up and may also be given incentive by reducing the time period of the course because of the field experience that they have attained. At least 25 per cent of the time of the students should be used for field training and apprenticeship. This should be regarded as a source for manpower development and all the ministries such as those of industry, electronics, communications, transport, agriculture, etc. should participate in this and must share the cost of manpower development (Srivastava, 1986).

Certain points mentioned in the document "Challenge of Education - a Policy Perspective" must be taken into consideration seriously. It says, "to provide a strong vocational base at 10+ stage the pre-vocational and work experience programmes in class IX and X will also have to be restructured. It will also be necessary to find an answer to the crucial question relating to the basis for screening students for entry into the vocational stream. The current prejudice against vocationalisation will never disappear if only the less intelligent and academically poorer students are sent to this stream." It is found that many students and parents are not aware of the purpose, utility and prospects of various vocational courses. Stories of successful students of vocational education need be given wide publicity at school, college and university level by opening various vocational guidance or counselling centers so as to create an urge for pursuing these courses.

To make vocational education system a success, strict compliance of the government proposal to delink degrees from jobs should be followed at each level. There is an urgent need to reach the rural people with experimental gains in the field of vocational education where economic uplift of the family is the felt need and not the degree. The curriculum structure should be provided with vertical and horizontal mobility for both academic and vocational streams. Educational planners should give stress to all aspects of professionalism in vocational education. Due care must be given for the training and recruitment of vocational instructors, preparation of curriculum, selection of courses and the opportunities of employment. Similarly, those who are interested to establish themselves or be self-employed, necessary financial and technical assistance should be provided to the vocationally trained persons. Necessary assistance and professional experience may be sought at regular intervals from the local professionals to provide practical guidance to the students. Finally, regardless of governmental inadequacies, the institutional heads should utilise the existing resources and facilities

available to them to the fullest extent with the cooperation of local community and with strong determination, commitment to accept the challenge and implement the vocational courses in their institutions successfully.

Prof. Ramlal Parikh has rightly suggested that the vocationalisation of education at all stages and not just vocational courses at +2 level should be our aim. Without cultivating a culture of dignity of work it would not be possible to create the necessary ethos for vocationalisation of education. This means that we should provide some minimum time for productive work experience from nursery to collegiate education. Besides, at the +2 stage and at the undergraduate college level, liberal grants should be available to start variety of vocational courses to suit aptitudes of students and local needs.

Conclusion

Though the vocationalisation of education programme was not very well received in many States and union territories as anticipated, it is time to look forward to the successful implementation and continuity of the programme. The success stories of States like Karnataka, Maharashtra and Tamil Nadu should be borne in mind. With approaching universalisation of primary education, larger access to higher education and the resultant greater output from the institutions of higher learning, salaried employment for all will become very difficult. Tackling the problem of educated unemployment will therefore hinge on the acceptability and adoption of self-employment. In view of the alarming unemployment problem, steps to provide work and also creation of work opportunities should be taken through the vocational education and top priority should be given to it in the Eighth Five Year Plan. To avoid dead ends in the educational system, proper bridges must be built between general and vocational education.

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Effect of Orientation Course on Teaching Methods in Higher Education on the Attitude of Academic Staff College Participants towards Teaching at the Tertiary Level

Shashikala Deshpande *

R.T.Jantli **

University teachers in India unlike school teachers take up their duties without any knowledge of pedagogy, let alone practice of it. They are expected to learn techniques of teaching on the job either by trial and error or by modelling themselves after their favourite teachers, a task fraught with difficulties. This system has worked so far after a fashion, because of the lack of teacher accountability. No university or college teacher is ever evaluated seriously hence the need to change and improve one's lecturing behaviour has not arisen.

Rarely does a college teacher think of his occupation as a career, let alone a profession. It is a job which needs to be done and it harms no one, if it is done in the same way year after year. Therefore, he is seldom motivated to seek opportunities for professional improvement or development. It is also true that the Principals are not overly concerned with their subordinates' development because most heads do not correlate individual teacher development with the development of the organisation.

With the changing times, specially in the face of the mushrooming private science/commerce tutorials and the heavy fees levied by them, sooner than later, parents will rebel against having to pay both for the tutorial and the college and students may come to the conclusion that colleges are dispensable and therefore lecturers! It is necessary that lecturers be shaken out of their smug complacency and forced to face reality. Secondly, the National Policy on Education (1986) has emphasised the need for data based objective appraisal of teachers. Therefore, in the coming years, there will be a concern for improving one's performance.

With the National Policy on Education (1986) for the first time in India, officially some serious thought has been given to the question of training university/college teachers resulting in the emergence of Academic Staff Colleges (ASC) which started functioning in 1987. One of the objectives of ASCs is to enable the newly ap-

pointed university/college teachers to acquire and improve basic skills of teachings. The ASC arranges to cover the syllabus of the orientation programme through lectures, seminars and workshops. However, few ASCs evaluate the participants, although in most ASCs, course evaluation is undertaken which is in terms of evaluating the resource persons and content coverage. In the present study, an attempt has been made to evaluate the participants' lecturing behaviour in a microteaching setting, although this was not the main purpose of the investigation. The investigators were interested in evaluating the effectiveness of the orientation programme on Teaching Methods in terms of the attitudinal changes in the participants. Attitudinal change is considered to be a product variable and instead of a cognitive domain objective an effective domain objective has been chosen.

Hypotheses

1. There is a significant difference in the mean attitude scores of ASC participants (lecturers) towards lecturing, measured before and after participation in the orientation programme on Teaching Methods in higher education.
2. There is a significant difference in the mean attitude scores of lecturers belonging to the Science Faculty towards lecturing, measured before and after participation in the orientation programme on Teaching Methods in higher education.
3. There is a significant difference in the mean attitude scores of lecturers belonging to Arts Faculty towards lecturing, measured before and after participation in the orientation programme on Teaching Methods in higher education.

Similarly, 17 minor null hypotheses in respect of the 17 items in the attitude scale for the whole group were set up.

Method

Sample: The sample consisted of 42 lecturers of the Faculties of Science (17) and Arts (25) who were the participants of staff orientation programmes held

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during December-January 1990 and January-February 1991 by the Academic Staff College at Karnatak University, Dharwad. Their ages ranged from 28 years to 45 years and their teaching experience from 5 to 11 years. There were nine women and thirty two men lecturers.

Tools : Two tools were used in the study :

1. A scale to measure attitudes of lecturers towards lecture method.
2. Deshpande's Observation System for College Teaching.

The first, a Likert-type attitude scale was developed by the first author. After going through the literature on lecturing, good teaching and communication (Beard *et al*, 1978; Brown, 1982; Davis, 1976; Gage and Berliner, 1976; Hurt, Scott, McCroskey, 1978; Joyce and Weil, 1985 and Lend, 1982), thirty two attitude statements were written. Item analysis yielded seventeen items classified under the following areas : methodology (4); training in lecturing (1); enthusiasm (3); stimulus variation (3); rapport (2); and communication (4).

It has a fairly high reliability co-efficient of .8476

(N = 23, split-half method).

Deshpande's Observation System for College Teaching (1991) is a combination of a sign-system and rating scale. It has both low-inference and high-inference items. The low-inference categories are Structuring comment, Questioning, Enthusiasm, Stimulus variation, Clarity, Classroom management, Task orientation, and Rapport. The high-inference items which were rated were Blackboard work, Language, Voice and speech, Subject matter mastery, Student behaviour and Congruence of verbal and non-verbal behaviour. The low-inference categories are observed every 2 minutes and the observations of all the different behaviours recorded once, even if those behaviours occur more than once in a specific 2-minute interval. The high-inference items have to be rated on a five point scale at the end of the observation period. All the above categories have been subscripted for more reliable observation.

The system has a satisfactory degree of reliability (Scott's reliability co-efficient ranging from .76 to .82). It has content validity.

Procedure: In this study data was collected from two batches of ASC participants but the investigators took sufficient care to ensure that the experiences of the participants in the two batches of the ASC courses were similar at successive stages of data collection.

In both the batches, the first author before beginning

her two sessions on teaching methods administered to the participants the attitude scale, scores on which were the pretest scores. The subjects of the study then participated in the lecture-cum-discussion on teaching methods in higher education (excluding lecture) conducted by the first author. Immediately afterwards the workshop on lecturing was held. The actual workshop was preceded by an orientation programme which included a lecture by the first author on the topics of classroom communication, microteaching in general and in particular a detailed exposition of the skills of explaining and stimulus variation. This lecture was followed by a live demonstration of 4 microlessons (2 positive and 2 negative models) illustrating the skills of explanation and stimulus variation given by the second author. It was conducted in simulated conditions with the intention of helping the subjects become familiar with the format that would be followed in the workshop.

The first author demonstrated the use of feedback forms as well as the process of giving feedback. The same day the subjects were also taught to use the Observation System for College Teaching. All doubts were clarified. Then for the next day each subject was asked to prepare a 10-minute lecture on a topic of his/her choice. The next day the group was divided into smaller groups with 8 to 10 participants and using the microteaching format with 5 peers as students, 1 microteacher and the rest as observers, every subject lectured for 10 minutes followed by receiving 5 minutes of feedback from the peer supervisor and the resource person.

The following day they were again administered the attitude scale towards lecturing, the scores on which formed the post-test scores.

Results and Discussions

The study had a pre-test post-test single group design. Hence, it was decided to use correlated t-model for testing the three major and 17 minor null hypotheses. The analyses and its results are reported in Table 1. The three major null hypotheses and four minor null hypotheses were rejected.

Findings

1. Lecturers in general after participating in the orientation programme displayed a significantly more positive attitude towards lecturing than before.
2. Lecturers of the Science Faculty after participating in the orientation programme displayed a significantly more positive attitude towards lecturing than before.

3. Lecturers of the Arts Faculty after participating in the orientation programme displayed a significantly more positive attitude towards lecturing than before.
4. Lecturers in general displayed a significantly more positive attitude towards communication aspects (Item Nos.11 and 12), and stimulus variation (Item No.15) after participating in the orientation programme.
5. Lecturers in general after participating in the orientation programme displayed a significantly lower positive attitude towards the use of humour in making lecturers effective (Item No.7)
6. The other 13 null hypotheses were retained as there were no significant change in the attitude of participants toward the rest of the Items (excepting item Nos.7, 11, 12 and 15).

Discussion

In this study, the investigator tested 3 major hypotheses and 17 minor hypotheses and rejected all the three major null hypotheses and 4 of the minor hypotheses. In all 7 null hypotheses out of 20 were rejected which indicates that a fair degree of confidence can be placed on the results of the study.

The study with a single group pre-test-post-test design attempted to measure the effectiveness of the orientation programme on teaching methods at the tertiary level in terms of the change in attitude of the participants before and after participation in the workshop on lecturing. Sufficient care was taken to ensure that the subjects were not exposed to other related areas like communication skills, educational technology etc. Hence the change in the attitude of the

TABLE I

Comparison of the mean attitude scores of lecturers measured before and after participation in the Orientation Programme on Teaching Methods in Higher Education

Group	df	Pre-rest Mean M_x	Post-test Mean M_y	SD_x	SD_y	r	SE_D	t
Whole	40	61.023	64.023	11.16	10.27	0.834	0.9615	3.120*
Arts	23	58.52	61.44	12.34	11.434	.8668	.9565	3.0528*
Science	15	64.70	67.82	7.8122	6.644	.6325	.9699	3.2168**
ITEM 1	40	3.99	3.69	1.698	1.244	.3887	.2158	1.00
ITEM 2	40	3.33	3.62	1.228	1.308	.208	.2464	1.177
ITEM 3	40	3.357	3.738	1.461	1.255	0.4293	.2255	1.6895
ITEM 4	"	4.095	4.309	0.921	0.8013	0.476	.1369	1.563
ITEM 5	"	2.571	2.691	1.2178	1.2499	0.3772	.208	0.573
ITEM 6	"	4.452	4.286	0.956	0.881	0.2423	.175	0.952
ITEM 7	"	4.275	3.976	0.7412	1.123	0.7124	.1218	2.4548*
ITEM 8	"	4.00	4.33	1.091	0.864	0.101	.2031	1.625
ITEM 9	"	3.57	3.91	1.28	1.02	0.225	.223	1.4995
ITEM 10	"	3.88	4.023	1.331	1.012	0.4619	.192	0.745
ITEM 11	"	3.095	3.786	1.271	1.081	0.284	.219	3.150**
ITEM 12	"	3.357	3.762	1.029	0.996	0.482	.160	2.547 *
ITEM 13	"	3.317	3.244	1.198	1.164	0.6696	.148	0.493
ITEM 14	"	3.595	3.643	1.156	1.130	0.527	.173	0.280
ITEM 15	"	4.00	4.45	1.113	0.662	0.485	.151	2.976 **
ITEM 16	"	3.62	3.43	1.29	1.22	0.4525	.203	0.9393
ITEM 17	"	3.952	3.905	0.899	0.868	0.116	.181	0.2595

* Significant at the 0.05 level

** Significant at the 0.01 level

related areas like communication skills, educational technology etc. Hence the change in the attitude of the subjects can be attributed, within reasonable limits, to their participation in the orientation programme as the post-test was administered immediately after the workshop. To this extent the effect of "history" can be ruled out.

It can be inferred from Table 1 that the subjects in the present study had a positive attitude towards lecturing even before their participation (on an average, a score of 3.5 approximately on a five point scale). After their participation, they displayed a more favourable attitude towards lecturing. Of the three groups, the Arts lecturers group had the lowest pre-test score whereas the Science group had the highest. The same ranking was maintained in the post-test also. This favourable attitude was true of the pre-test scores on all the individual items of the attitude scale. The explanation could be that as the subjects of the study were all experienced teachers (with a mean teaching experience of 7.5 years) it is quite possible that many of them had learnt good lecturing practices on the job by trial and error methods.

The items towards which they showed significant positive shift are on communication and stimulus variation – questioning. Communication is a subject which by and large lecturers do not know much about and the positive shift indicates that the participants realise the importance of communication : communication not being one-way and that non-verbal communication is also important. It can also be inferred that participants are more than convinced about the use of questions in lectures.

The finding is equivocal with respect to humour making lectures effective. There has been a negative shift although the attitude towards the use of humour is still positive.

In conclusion it can be said that the orientation programme has been effective in modifying the attitude of lecturers towards lecturing. It would be interesting to study the effect of such an orientation programme as this on beginning lecturers.

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Counselling

An Imperative Academic Exercise

(Contd. from page 1)

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Haryana to Strengthen Technical Training

The Haryana government is reported to have taken a series of steps to develop, expand and diversify the technical education programme in the State. Giving this information, Mr. Chhattarpal Singh, Minister of State for Technical Education, said that a new engineering college had been established at Murthal near Sonapat to offer degree-level courses in various disciplines of engineering, such as mechanical, electronics, electrical, computer science and engineering and chemical engineering etc.

He also said that a postgraduate diploma-level institute i.e. Institute of Hospital Engineering, had been set up at Rohtak, an Institute of Management and Pharmacy at Adampur in Hissar district and a Government Polytechnic for Women at Sirsa. Besides, a number of courses in new fields of technology, such as computer engineering, electronics, chemical engineering and production engineering etc. had been added in the existing polytechnic colleges.

The Minister said that the scheme for the establishment of a new engineering college at Hissar had been recently approved by the All India Council for Technical Education and necessary action to implement this project was underway. There is also a proposal for the establishment of a new polytechnic at Manesar in Gurgaon district, he added.

He also stated that the State Government had decided to open at

least one polytechnic in each district. Accordingly, schemes for setting up government polytechnics in the remaining district of the State, i.e. Kaithal, Jind, Rewari, Bhiwani and Kurukshetra, had been included in the proposed Eighth five-year plan 1992-97.

Efforts are afoot to further expand and develop technical education in the State. Haryana has been included in the phase-II programme of the World Bank project for development of technical education. The World Bank has agreed to provide an assistance of about Rs.81 crore to the State for the purpose.

The World Bank assistance will be utilised to modernise and strengthen 12 existing polytechnics (8 government and 4 privately-managed but government-aided) besides establishing three new co-educational polytechnics at Hissar, Narnaul and Utawar and one residential polytechnic for women at Faridabad.

In addition to this, a number of new courses in new engineering fields of technology such as plastic technology, instrumentation engineering, ceramic engineering, computer engineering and electronic engineering will be introduced at 14 places in the existing polytechnics.

Provision has also been made under the World Bank project for creating computer facilities and additional hostel accommodation, both for boys and girls, and staff residences. With the implementa-

tion of World Bank project, the annual intake capacity in diploma and advance diploma courses, other than pharmacy, will increase from 2,065 to 2,995.

The Government Institute of Engineering, Sonapat, which is at present offering diploma courses in three disciplines, namely production engineering, industrial management and mechanical engineering, has also been covered under the World Bank project.

National Workshop on Lexicography

Dr. P.V. Ranga Rao, the Andhra Pradesh Minister of School Education, suggested to the Telugu University to teach at least 100 teachers every month and promised to provide whatever assistance the university needed in this regard. He was inaugurating the national workshop on Lexicography organised by the Telugu University recently. The Minister said the most of the teachers in the 16,000 schools in the State could not teach the students effectively either in their mother tongue or in any other language.

The Government would also help if translation of works of the Gnanpeeth award winners were attempted into other Indian languages, with the help of lexicography, he said.

The Minister advised the scholars attending the workshop not to think that working on a lexicon as a tedious or strenuous job. Instead they should enjoy coining new words and attempt to learn new words everyday, as words live in the stream of language for ever.

He said that the lexicographers must adopt computer technology and audio and visual aids in their work.

Prof. C. Narayana Reddy, Vice-Chancellor, Telugu University, said the Telugu University had established a separate Department of Lexicography and that the workshop was a follow up to the national seminar on Lexical Semantics held in January this year.

He said that the university had compiled a dictionary on newspaper language and had undertaken the preparation of Telugu-Tamil and Telugu-Kannada dictionaries.

Prof. B. Ramakrishna Reddy, Dean, School of Language Development, said the several workshops were being planned by the department. Among them were, a training programme for Telugu stringers, two refresher courses in Telugu, a seminar-cum-workshop on language planning for literacy development and a refresher course on Telugu language and linguistics.

Over 40 scholars from 10 different States participated in the workshop.

BITS and KESNIK Sign MoU

The Birla Institute of Technology and Science (BITS), Pilani, and the Kerala State Nirmithi Kendra (KESNIK) recently signed a Memorandum of Understanding (MoU) for collaboration in educational programmes in habitat technology and management, exchange of ideas for research and development in habitat studies and manpower training. The MoU was signed by Dr. S.Venkateswaran, Director of BITS and Mr. C.V. Ananda Bose, Director of KESNIK. The KESNIK is a charitable society engaged in activities connected with low cost technology for house build-

ing.

Under the agreement, the BITS will soon start an off-campus centre in Trivandrum. The BITS already has off-campus centres in many places like Delhi, Madras, Calcutta, Bombay and Bangalore.

To begin with, the BITS will start a course on Master of Science in habitat technology for 20 candidates to be sponsored by the various agencies like the KESNIK, PWD, HUDCO and others engaged in housing activities. Later on, the BITS also proposes to start courses on habitat management and B.Sc (habitat tech) which will be attended by students from outside Kerala also.

Talking about the programme State Minister for Revenue and Housing, K.M. Mani, said the role of Kerala's Nirmithi Kendras in evolving ways of low cost housing has been widely acclaimed by the United Nations Centre for Habitat Studies (UNCHS) and Kerala is one of the 10 States selected by them for the training programme.

Refresher Course in Library & Information Science

Gujarat Vidyapith recently organised a Refresher Course in Library & Information Science with the financial aid from U.G.C. Inaugurating the course Dr. Sarup Singh, Governor of Gujarat, advised the students and the participants in Vidyapith to emulate the examples of learned and devoted workers who tirelessly worked for the great institution. He narrated the experience from Gandhiji's life and said that those who were studying here were the most fortunate people, because even the dust of this land where Gandhiji lived and worked was pious like the water of Ganges. It should be respectfully

put on the head. He advised the participants — librarians — to preserve the human heritage in their library and always be useful to the readers.

Prof. Ramlal Parikh, Vice-Chancellor, gave the history of Gujarat Vidyapith and informed the guests about the various activities carried out there. He told all those present at the function that "RUSHIKARYA" — the functions of the sage of learning and teaching was being constantly persued and at the same time the dignity of labour "SHRAM" was also maintained.

Each and every student, he said, was trained in developing his personality through self-sufficiency. He also apprised the guests with introduction of modern means of teaching like computer technique in the field of learning and teaching and hoped for bringing in more new technology.

Nearly twenty participants including librarians and library science teachers from Bihar, Pondicherry, Maharashtra and Gujarat participated in the programme.

Longowal Institute of Engg & Tech

The Longowal Institute of Engineering and Technology (LIET), has started functioning in village Longowal in Punjab. The Institute will provide formal and continuing education in identified areas from certificate level to postgraduate level.

The institute would also run bridge courses at appropriate levels to make up for the deficiencies among students when they want to enter higher level programme after certain work experience.

The national expert committee,

which was set up to work out infrastructure requirements of industrial and government departments, suggested that entrepreneurship should be built up in future in the curriculum of all courses so as to equip the institute's graduates for self-employment as far as possible.

The LIET would be developed in three phases. During the first phase, the institute would have 12 certificate and 10 diploma level programmes, and in the second phase four diploma and nine degree level programmes would be conducted in addition.

NEC Scholarships & Book Grant

The North Eastern Council (NEC) is reported to have decided to award stipend and book grant to the students of North Eastern Region for studying in Institutes outside this region in the subjects specified by the NEC under its miscellaneous training programme scheme.

The courses of studies for which NEC's financial assistance would be admissible are electronics & communication, telecommunication engineering, radio-physics and electronics, computer science & engineering architecture, mining engineering, mining machineries, textile engineering, textile technology, automobile engineering, aeronautical engineering, petroleum technology, leather technology, biotechnology, fashion technology, geophysics, paints technology, rubber technology, food technology, timber technology, paper technology, printing technology, power system engineering, production engineering, metallurgical engineering, instrumental and control engineering. The levels of these courses are diploma, degree and postgraduate.

The other courses for which also

financial assistance would be available are Business Administration (MBA course), Personnel Management & Industrial Relations, Industrial Relations, and agriculture and allied subjects.

Further details may be obtained from the Assam Information Centre, Pragati Path, Guwahati-5.

Natural Energy Institute

National Institute of Natural Energy (NINE), a voluntary body for research, training and clinical services in various therapies was inaugurated by former MP, Mr. B.N. Reddy in Hyderabad recently. Speaking on the occasion, Mr. Reddy said every system of medicine had its own advantages and disadvantages. He favoured naturopathy as it yielded better results and said that homeopathy was better than allopathy in some ways.

He pointed out that the greatest asset of allopathy was the achievements in complicated forms of surgery. But at the same time, the use of antibiotics also posed some problems. While antibiotics were used frequently in India, western doctors rarely used them, he said.

He regretted that the allopathic medicines banned in other developing countries, were still being used in India. He said 22,000 drug formulations were in use in the country as against a few hundreds in western countries.

Mr. K.J. Prasad, Executive Director, Society for Awareness through Learning and Training (SALT), which is promoting NINE, said SALT was functioning in eight districts in the State. It has proposed to conduct a 15-day training course for women in Delhi soon, on scope of natural powers to cure

diseases.

INSA Awards for Young Scientists

Fourteen scientists have recently been presented the Indian National Science Academy medals for young scientists (1991) for outstanding contributions in the fields of physical, chemical and biological sciences.

The Anil Kumar Bose Memorial Award for this year went to Dr. Anurag Sharma from the Indian Institute of Technology, New Delhi, for his work on fibre optics communication.

Dr. A. Ajaya Ghosh from the Regional Research Laboratory, Trivandrum, received the award for his contributions on polymers while Dr. G. Amarendra from Andhra University, Waltair, got the award for his studies on metal physics.

Dr. S.N. Bagchi, a biologist from Rani Durgawati University, Jabalpur, was awarded the medal for his work on the physiology of blue green algae called cyanobacteria and Dr. A.N. Bhaskarwar from IIT, Delhi, got it for his research on chemical reaction engineering.

The other awardees include Dr. P.P. Chakrabarti, a computer scientist from IIT, Delhi, for his work on computer algorithms, Dr. B.R. Das from the Institute of Life Sciences, Bhubaneswar, for research in genetics and Mr. Vinay Kumar from the Solid State Physics Laboratory, Bhabha Atomic Research Centre, Bombay, for his contributions in the field of enzyme structure and function.

Dr. Shyamalava Mazumdar from the Tata Institute of Fundamental Research, Bombay, received the award for his studies in the area of bio-inorganic chemistry and Dr. A.K. Mohanty for his theoretical work in nuclear physics.

Dr. C. Siva Ramamurty from IIT, Madras, was given the medal for his work on parallel processing, Dr. S. Padma from the University of Hyderabad for chemistry, and Dr. Nirmala Rajaram for immunological studies on cancer.

The INSA medals were also awarded to Dr. Pulak Sengupta, a geologist from Calcutta and K. Uma from the Indian Institute of Science, Bangalore, for their studies on proteins.

Six-month Course in Social Work

The Department of Continuing Education of SNDT Women's University and the Social Service League, Bombay, are reported to have decided to introduce a six-month course in para-professional social work for those wanting to do social work. Details may be had from the university's Department of Continuing Education.

Course in Applications of Statistics

The Punjabi University has started an evening certificate course in "Applications of Statistics in its Department of Statistics from this academic year. The course is oriented to lay emphasis on application of essential statistical techniques, useful in field and laboratory investigations. It is a non-theoretic course and will be useful to research workers in life sciences, physical science, social sciences and other professional disciplines including medicine, engineering, education etc.

Dr. Balarama Gupta Honoured

The World Academy of Arts and Culture, USA, has conferred an honorary Degree of Doctor of Literature on Dr. G.S. Balarama Gupta, Professor and Chairman of the Department of English and Dean of the Faculty of Arts of the Gulbarga University in Karnataka.

News from UGC

Countrywide Classroom Programme

Between 1st November to 9th November 1991 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

1.00 p.m. to 2.00 p.m.

1.11.91

"Human Resource Development"

"Facing the Future - I"

"Effect of Air Pollution on Materials"

2.11.91

"The Pot Makes It Self - I"

"Handicrafts of Andhra Pradesh - Nirmal Art Ware"

"Initial Programme for Library Users"

3.11.91

No Telecast

4.11.91

"Remote Sensing XI : Data Transmission"

"Operation Koiko"

"Bonsai - The Green Dwarfs - II"

5.11.91

No Telecast

6.11.91

"Real or Fake"

"Cosmic Sparklers"

"Plants as Resources"

7.11.91

"Programming in PASCAL Language - I; Programme Structure"

"Glimpses of Girasia Life - I"

"Beauty, Truth and Life : Keats's Gracian Urn"

8.11.91

"Vedic Mathematics - I : Nikhila Navatas Caramam Desathah"

"Facing the Future - II"

9.11.91

"The Pot Makes It Self - II"

"Handicrafts of Andhra Pradesh - Etikoppaka Toys"

"Dance Depicts Life"

IInd Transmission

4.00 p.m. to 5.00 p.m.

1.11.91

"Stellar Universe"

"Women in Epics : An Interpretation"

"An Enemy Called Izonos"

2.11.91

"Rasa Ranjita - Understanding Indian Dance - 4 : Bharatnatyam - I"

"Rehabilitation of Disabled Children : A Human Factor"

"Career Guidance Education"

3.11.91

No Telecast

4.11.91

"Remote Sensing - VI"

"Development Models"

"Chinese Porcelain"

5.11.91

No Telecast

6.11.91

"Science and Technology Centre - II"

"The Living Heritage of Temple Architecture"

"Nature's Largest Bouquet"

7.11.91

"Bandhaj - The Art of Tie and Dye"

"Martial Aert of Orissa -I(Paik Dance)"

"Appreciation of a Poem"

8.11.91

"Numerical Methods - Solutions of Non-Linear Equations - I"

"Personality Disorders - I"

9.11.91

"Rasa Ranjita - Understanding Indian Dance- 5: Bharatnatyam -II"

"Photoschool - I: Camera"

We Congratulate ...

1. Professor Sabyasachi Bhattacharya who has been appointed Vice-Chancellor of Visva Bharati, Santiniketan.
2. Dr. Vithalrao Bapurao Ghuge who has been appointed Vice-Chancellor of the Marathwada University, Aurangabad.
3. Dr. (Km.) Sarayu Kalekar who has taken over as Vice-Chancellor of the Indira Kala Sangit Vishwavidyalaya, Khairagarh.
4. Dr. Suresh Kumar Sinha who has taken over as Director of the Indian Agricultural Research Institute, New Delhi.

Sports News

Central Zone Badminton Championship

The Association of Indian Universities hosted the Central Zone of the Inter-State Badminton Championships. The Tie was staged at the Madras University Union Gymnasium on 24th September, 1991. Each match, except for 1st match of Men's Doubles, was a closely contested affair between the Railways on the one side and the Indian Universities on the other. Railways had a comfortable win in this Doubles match. The Tie, however, was won by the Railways. The detailed results are as follows :

Indian Universities		Railways	Score
Men Singles			
i) P. Gopichand	lost to	Harjeet Singh	11-15, 11-15
ii) Yogesh Padukone	lost to	George Thomas	14-17, 6-15
iii) Rajiv Maikhuri	lost to	Srikant Bakshi	11-15, 12-15
Men Doubles			
i) A. Vinay Babu and P.Gopichand	lost to	Leroy D'Souza and Vinod Kumar	7-15, 3-15
ii) Bunty Gujral and Yogesh Padukone	lost to	Harjeet Singh and George Thomas	W/O by Railways
Women Singles			
i) Shalmalee Palekar	lost to	Sindhu Gulati	1-11, 12-10, 11-12
ii) Shilpa Shah	lost to	P. Vadhana	11-12, 10-12
Women Doubles			
Rituja Indapure and Shalmalee Palekar	lost to	Madhumita Bisht and Sindhu Gulati	W/O

News from Abroad

India Studies Chair at Berkeley

A chair in India studies has been established at the University of California at Berkeley. Endowed almost entirely by the San Francisco area Indo-American community, the new chair was recently inaugurated at a ceremony attended by Mr. Abid Hussain, India's Ambassador to the United States, and Mr. John Kenneth Galbraith, the former U.S. Ambassador to India.

Mr. Steven Poulos, Vice-Chairman of the Centre for South Asia Studies, said this was the first faculty chair at the University of California endowed by an ethnic community. He said the Indian-American community was interested in establishing such a chair to help American students of Indian descent.

A Desultory Logbook

A. P. Venkateswaran*

Karan Singh. *Brief Sojourn: Seven Months as Ambassador to the United States*. Delhi, B. R. Publishing Corporation, 1991. PP.161. Rs. 100/-.

"BRIEF SOJOURN" is about the author's tenure of seven months as India's Ambassador to the United States. As he says in the introduction to the book, "a chronological rather than a thematic approach" has been adopted by him due to the shortness of stay in the country and "the wealth of activity packed into it".

Activity there certainly has been, but in what manner it contributed to the "wealth" either of the country, or of himself, continued to baffle this reviewer, as he ploughed through page after page of what, in fact, amounts to a diary of rather pedestrian day-to-day events.

Starting with the Introduction, it is clear that the author had been at pains to project his own image larger than life. Karan Singh makes no secret of the fact that he is as pleased as punch at having landed this particular diplomatic assignment. As he says, he had dreamt about it, three years before, but it was offered to him by Prime Minister Rajiv Gandhi only in 1988. He accepted the offer with alacrity. Ac-

ording to him, he made two conditions : Firstly, that it "should be made publicly known and conveyed to President Bush" by the Prime Minister that he (Karan Singh) enjoyed his personal confidence, as that alone could make it possible "for effective functioning"; and, secondly, that he should have "direct access" to Rajiv Gandhi.

He remarks with considerable satisfaction that not only were both these assurances given, but the personal rank of Cabinet Minister was also bestowed upon him. In fact, it has been routine practice for some years now for Heads of our Missions in Washington, Moscow and London to be given the personal rank of a Cabinet Minister. What this really means in terms of their actual function, however, still remains obscure to this reviewer.

One thing comes out all too starkly in the book. It is the author's lurking suspicion amounting to antipathy towards officialdom in the Ministry of External Affairs, which was shared by his immediate predecessor in office, another non-career Ambassadorial appointee, who had cautioned him that the Ministry had "virtually sabotaged everything he had tried to do". Karan Singh adds somewhat unnecessarily: "I was somewhat

surprised at his vehemence, but in due course came to understand it better."

The reader is then made privy to the many facets of the personality of Karan Singh. For starters, he glories in recounting how the family portraits of his ancestors, in all their regal splendour, were taken along by him to adorn the walls of the Embassy Residence. He reminisces about the meeting halls packed to over-flowing which apparently were a regular characteristic of functions held in his honour. And he repeatedly refers to the two write-ups, otherwise known as curtain raisers in journalistic parlance, about his posting as the Indian Envoy to the U.S., the first of these being published in the *New York Times*, entitled, "Philosopher coming to the U.S. as India's Envoy", and the second in the *Washington Post*, entitled: "Maharaja on Embassy Row".

As a saving grace, there are some very occasional flashes of humour, and a few poetic touches. Some examples may be cited as where he describes the magnificent red-wood forests on the West Coast:

"It was raining fairly hard by then but we took out umbrellas and walked amongst those great and marvellous trees which formed a living cathedral."

Or, when he refers to the plaque awarded to him by the World Peace University, for "extraordinary leadership at personal and global levels in making the planet a better place and for being an international voice of reason and under-

*Fellow, Centre for Policy Research, Dharma Marg, Chanakyapuri, New Delhi-110 021.

Former Foreign Secretary, Govt. of India.

standing".

The reference to the then Minister of External Affairs, Mr P.V. Narasimha Rao, now the Prime Minister, is particularly apt. Before leaving for the United States, Karan Singh had called on him, and remarks that he was "positively friendly and even smiled once or twice, which was a minor miracle for him."

There are numerous references to personalities whom he met, ranging from that Eminence Grise of the U.S. Establishment, Dr. Henry Kissinger to the redoubtable Janki Ganju, the public relations man of the Embassy, who has over the years become an institution by himself.

There is also much trivial information of various kinds which features in the book, without adding, in any way, to the knowledge of the reader about what diplomacy is about, except to confirm the false impression that diplomats tend to travel endlessly to exotic places and otherwise are engaged in attending assorted glamorous dinners and receptions. This is particularly regrettable since Karan Singh, despite his antipathy to the career foreign service and the Ministry of External Affairs must have done something worthwhile besides jet-setting during his 'Brief Sojourn' in the Land of Opportunity.

It is rather ironic that two paragraphs are reproduced in the book from a letter he wrote to Prime Minister Rajiv Gandhi on the latter's resignation after losing the General Elections in November 1989, in which he speaks about "courage in the face of adversity".

It brings back unkind memories of how Karan Singh had no compunction in following the dictates of Prime Minister Indira Gandhi during the Emergency years al-

though later on he deposed before the Shah Commission that he had been always opposed to the compulsory family planning measures imposed at that time. It was mainly the public anger aroused against the government on that account which had swept Mrs. Indira Gandhi from power in 1977.

In spite of his trying to maintain a stiff upper lip, there is no concealing the fact that Karan Singh was both deeply distressed and angered by his early recall. Both feelings are understandable, but not easily acceptable in someone who claims to be a philosopher. Equally jarring are the many testimonials from the American print media in his own favour, e.g. the quotation from an item from the *Washington Post* by the columnist Mary McGrory, where she wrote about his recall and said: "Karan Singh is the most glaring example of New Delhi's weakness for human chess. ... It is hard to see how they could find anyone more representative of both the old India and the new. Son of a Maharaja (of Jammu & Kashmir) and yet an alumnus of ... a linguist, a scholar, a philosopher, an author, a composer and a fan of hard-rock." (sic)

One is left wondering, after all this, at the concluding sentence of the book where the author states: "Above all, my inner life had in some subtle manner been illuminated, giving deeper meaning to my brief sojourn in the United States of America".

To sum up, knowing the author's ability, his standing in this country's public life as well as the many positions of distinction he has held, BRIEF SOJOURN is a disappointment. It certainly could have been a more worthwhile effort if it had at least brought out some of the facets of American life, and in particular as to how Americans perceive India.

The book could have been of permanent value if the major issues which presently involve the two countries had been dealt with in some detail. Instead, it has turned out to be a desultorily maintained logbook where one keeps reading about many disjointed events without being any the wiser as to their significance in regard to Indo-U.S. relations.

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Your copy should reach us not later than 4 p.m. Monday preceding publication.

Attention Publishers !

Publishers are welcome to submit their latest publications, other than Textbooks, for review in the *University News*. Two copies are required to be submitted; one is sent out to the reviewer while the other is retained in the office for reference and record. All reviews published in *University News* are signed.

THE REGISTRAR OF AN INDIAN UNIVERSITY

The article by T.Sivasankaran titled "The Registrar of an Indian University" (*University News* dt: 9.9.1991) reveals only one side of the duties and responsibilities of the Registrar and does not highlight the other and more important practical side of the problems that a Registrar has to face in the given environment prevailing in the university campuses. The Registrar is constantly under pressure to do things which he cannot do under the provisions of the University Act or rules and regulations. Therefore the attack on a Registrar is mostly from people — be they the members of the Syndicate/Executive Council/Board of Management who frame the policy guidelines for execution in the universities or teachers, research scholars and students — who want to get their things done 'somehow'. The Registrar is always placed in an

embarrassing situation as he is the main contact point in university administration and whoever approaches him with a problem expects immediate and favourable solution. People raise issues and desire to seek immediate solutions from the Registrar and any delay in the process attracts the inevitable criticism that he is inefficient and unhelpful. The Registrar has to act within the framework of the provisions of the University Act concerned, rules, regulations, statutes and ordinances and under the directions of the Vice-Chancellor and virtually he has no freedom to act independently though he is the linchpin of the administration.

The Registrar of a university in the Indian context is also a victim of political assaults. More often than not the politicians make the life of the Registrar miserable if he does

not satisfy their demands and aspirations. As long as the politicians do not intervene in the university administration, directly or indirectly, a Vice-Chancellor or a Registrar can discharge his duties dispassionately. But this is asking for the impossible. Hence it is rather impossible to find a Registrar who is "an artist in human affairs" since neither the artist nor the human being in the Registrar are ever appreciated by the power hungry politicians who have been ruining the institutions of higher learning.

E. Sathyanarayana
Director,
Academic Staff College,
Sri Venkateswara University,
Tirupati
& Former Registrar,
Sri Kirshnadevaraya University,
Anantapur.

Just Released

Graduate Unemployment in India

Since the dawn of the present century, the lengthening shadows of unemployment have been threatening to engulf the entire world. Even the developed nations, which had enjoyed relative immunity from this scourge for a long time, are increasingly experiencing its onslaught. The vast expansion of educational facilities all over the world, has led to a tremendous upsurge in the production of educated persons of various categories. The development of economy is, however, unable to keep pace with the ever-expanding army of educated personnel. The result is the widening mismatch between the production of such persons and their placement in gainful employment.

The position of the less developed countries (LDCs) in general, and of India in particular, is more pathetic.

Ever rising unemployment in India has the potentiality of bringing about serious retardation in the pace of economic development, fragmenting the social fabric of the country and endangering the cohesiveness of the Indian polity. On the one hand, it leads to the depletion of the already scarce financial and physical resources and on the other, it gives rise to a multiplicity of complex socio-political tensions.

The Association of Indian Universities sponsored a study of the variegated facets of the problem. The study provides deep insight into the incidence and causation of the problem and has belied some of the popular beliefs about education-employment linkages.

Paperback

1991

Rs.150.00

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Telex: 31-66180 AIU IN

"Geomagnetism and Earth's Interior"

(Department of Science and Technology, Govt. of India)

The Science and Engineering Research Council (SERC) in the Department of Science and Technology (DST) has entrusted Indian Institute of Geomagnetism (IIG), Bombay, to coordinate a five year programme of a series of Annual summer/winter schools to encourage research by young scientists in the frontier areas of Geomagnetism and Earth's Interior (GEI). The first school in this series was held at Kurukshetra University. The second SERC summer/winter school on

"Geopotentials-I"

will be conducted at Department of Geophysics, Andhra University, Visakhapatnam-530 003

Course Director : Prof. I. V. Radhakrishna Murthy
Department of Geophysics
Andhra University, Visakhapatnam-530-003

Co-Director : Dr. Mita Rajaram
Indian Institute of Geomagnetism
Colaba, Bombay - 400 005

The duration of the course will be from 23rd March to 11th April 1992.

COURSE CONTENT

1. Geomagnetism
2. Rock magnetism
3. Magnetic instruments and surveying
4. Theory of magnetic fields
5. Magnetic interpretation
6. Magnetic inversion
7. Magnetic interpretation in frequency domain
8. Geological applications
9. Geodynamics and magnetic anomalies
10. Geomagnetic Depth Sounding
11. Satellite magnetic anomalies
12. Special Lectures (on various themes covering geopotentials)

Young researchers and scientists engaged in geophysical research or exploration in any national/State organisation or University within India are eligible for admission in to this school. Interested candidates may write to Dr. Mita Rajaram, IIG, Bombay on or before 10th December 1991 giving the following information:

i) Name, designation and address, ii) Academic qualifications, iii) Age, iv) Field of Research and Publications if any, v) Employment particulars and experience, vi) Utility of the course to the participant/organisation, vii) Whether travel grant is required, viii) Recommendations of the sponsoring authority.

This information should be sent along with nomination letter from the sponsoring agency. However, direct copies of application can be sent to save time. There is no course fee. TA and/or DA will be paid to the desiring participants as per rules. Selected candidates will be informed in January 1992.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in the bibliography. Such universities as are not sending us regular information in respect of doctoral theses accepted and research scholars enrolled are welcome to make use of these columns.

The library also receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly the column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received
in AIU Library during October 1991

EDUCATIONAL PSYCHOLOGY

Glaser, Robert. Maturing of the relationship between the science of learning and cognition and educational practice. *Learning and Instruction* 1(2), 1991, 129-44.

Meyer, J H F and Watson, R M. Evaluating the quality of student learning. II- study orchestration and the curriculum. *Studies in Hr Edn* 16(3), 1991, 251-75.

EDUCATIONAL ADMINISTRATION

Ball, Christopher. Merging of the PCFC and UFC: Probable, desirable or inevitable ? *Hr Edn Q* 45(2), 1991, 117-24.

Fielden, John. Resource implications of mergers: Are there any economics ? *Hr Edn Q* 45(2), 1991, 158-66.

Walker, Robert and Stringer, Peter. Issues in the management of social science research centers. *Hr Edn Q* 45(1), 1991, 62-77.

CURRICULUM

Anderson, Albert A. Three kinds of goodness: Clustering courses as a model for contemporary higher education. *Studies in Hr Edn* 16(3), 1991, 309-18.

Jordan, Steven and Yeomans, David. Whither independent learning ? The politics of curricular and pedagogical change in a

polytechnic department. *Studies in Hr Edn* 16(3), 1991, 291-308.

TEACHERS & TEACHING

Leftwich, Adrian. Pedagogy for the depressed: The political economy of teaching development in British Universities. *Studies in Hr Edn* 16(3), 1991, 277-90.

Powney, J. Teacher appraisal: The case for a developmental approach. *Ednl Research* 33(2), 1991, 83-92.

EDUCATIONAL TECHNOLOGY

Boyes, E. Evaluation of microcomputer systems in education. *Studies in Ednl Eval* 17(2/3), 1991, 263-73.

Peled, Zimra and others. Ecology and experimentation in the evaluation of information technology interventions in natural classroom settings. *Studies in Ednl Eval* 17(2/3), 1991, 419-48.

EDUCATIONAL EVALUATION

Barrett, L R. 'Well-informed, but unimaginative'. *Hr Edn Review* 23(3), 1991, 50-4.

Elliott, John. Changing contexts for educational evaluation: The challenge for methodology. *Studies in Ednl Eval* 17(2/3), 1991, 215-38.

Gallagher, Alison. Comparative value added as a performance

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Bee, Malcolm and Dolton, Peter. What do graduates earn?: The starting salaries and earning prospects of university graduates 1960-1986. *Hr Edn Q* 45(1), 1991, 78-90.

Dreijmanis, John. Higher education and employment: Is professional employment a right? *Hr Edn Review* 23(3), 1991, 7-18.

Jain, Balbir. Returns to education: Further analysis of cross country data. *Eco of Edn Review* 10(3), 1991, 253-8.

McGavin, P A. Policy evaluation of investment in education: A Papua New Guinea study. *Eco of Edn Review* 10(3), 1991, 213-26.

Woodley, Alan. Access to what?: A study of mature graduate outcomes. *Hr Edn Q* 45(1), 1991, 91-108.

SCIENCE EDUCATION

Ediger, Marlow. Creativity and Science. *Progress of Education*

VOCATIONAL EDUCATION

Iredale, Adrian. Curricular merger at a medical college. *Hr Edn Q* 45(2), 1991, 167-75.

LIBRARIES & BOOKS

Mendel, David. What does the academic publisher actually do? *Hr Edn Review* 23(3), 1991, 61-5.

ADULT EDUCATION

Shukla, S. Literacy and development: Retrospect and tendencies. *Eco & Pol Weekly* 26(38), 1991, 2195-7.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Harvey, A D. European universities in a period of change: 1789-1815. *Hr Edn Review* 23(3), 1991, 41-9.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

BIOLOGICAL SCIENCES

Forensic Sciences

1. Lala Ashim Kumar. Wound ballistics of shotguns including improvised shotguns. Punjabi. Dr P K Chattopadhyay, Prof, Department of Forensic Sciences, Punjabi University, Patiala and Dr O P Chugh, Director, Forensic Science Laboratory, Karnal.

Environmental Sciences

1. Dineshchandra Shetty, B. Studies on the ecological aspects of domestic sewage disposal on the intertidal macrobenthos of Karwar. Karnatak. Dr B Neelakantan, Prof and Chairman, Department of Marine Biology, Karnatak University, Kodibag- Karwar.

2. Gandhi, P. Studies on the microbial degradation of industrial effluents with special reference to tanning. Madurai.

3. Rajathy, S. Ecotoxicological studies on the coastal ecosystem of Madras with special reference to the Ennore estuary. Madras.

4. Ranjit Singh, A J A. Studies on the effects of dimecron (phosphomidan-organophosphorus pesticide) in a chosen fresh water snail, *Indoplanorbis exustus* Deshayes. Madurai.

5. Vijaya, Joan. Organophosphorus insecticide pollution on the aquatic microflora of the River Cooum. Madras.

Biology

1. Sivaraj, T K. Ecological studies on Western Ghats of Tamilnadu. Madurai.

Biochemistry

1. Katiyar, Sadhana. Studies on polyamines, nitrogen assimilation and certain dehydrogenases in relation to salt tolerance in rice. BHU. Dr R S Dube, Lecturer, Department of Biochemistry, Banaras Hindu University, Varanasi.

2. Nandakumar, M P. Fermentation of rice and related products by *Bacillus* Sp. CUST. Dr M Chandrasekharan, Lecturer, Department of Applied Chemistry, Cochin University of Science and Technology, Kochi.

3. Rajeswari, G. Biochemical markers for blood glucose control

in diabetes mellitus using conventional therapy and supplementation with the herbal extract of *Gymnema sylvestre* R.Br. Madras.

4. Sarfraz Ahmad. Purification and properties of cathepsin B from buffalo, *Bubalus bubalis* spleen. NEHU. Dr M Y Khan, Department of Biochemistry, North-Eastern Hill University, Shillong.

5. Sekar, N. Biochemical studies on the insulin-like effects of sodium orthovanadate on experimental diabetes in rats. Madras.

6. Vairapandi, M. Biogenesis of mitochondria: Studies on RNA polymerase. Madurai.

Microbiology

1. Afzal Unnisa. Prevalence of *Klebsiella* as nosocomial infection and evaluation of various methods for typing. Madras.

2. Kalita, Dilip Kumar. Studies on the mechanism of thermoresistance development and dormancy in *Bacillus*. Dibrugarh. Dr R P Singh, Scientist 'C', Regional Research Laboratory, Jorhat.

3. Ramesh Kumar, G. Microbial energy production: Augmentation of hydrogen production and pollution reduction. Madras.

4. Thiruvengadam, Lata. Amoebiasis in Madras City: A microscopic, cultural, zymodeme, serological and immunoglobulin study. Madras.

Botany

1. Ashok Kumar. Effect of air pollutants on microbial decomposition of leaf litter of a tropical dry deciduous forest. BHU. Dr Bharat Rai, Prof, Department of Botany, Banaras Hindu University, Varanasi.

2. Dhiman, Sudha. Investigations on male sterile barley. Kurukshetra.

3. Jain, Kalyan Kumar. Weed management in soybean, *Glycine max* (L.) Merrill. HS Gour. Dr T R Sahu, Department of Botany, Dr Hari Singh Gour Vishwavidyalaya, Sagar and Dr J P Tiwari, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur.

4. Jayakumar, P Pon Samuel. Studies on two novel plant growth regulators: Tetraphenyl boron and phenylboronic acid. Madras.

5. Kalimullah. Studies on the bark anatomy of some cultivated trees. AMU. Dr Ziauddin Ahmad, Reader, Department of Botany, Aligarh Muslim University, Aligarh.

6. Lakshmi, K. Study of dermatophytosis among school children of Hyderabad. Osmania.

7. Malviya, Hitesh Kumar. Studies on biodegradation of keratin by keratinolytic fungi isolated from gelatin factory campus and their potentiality as human pathogens. Durgawati. Dr S K Hasija, Prof and Head, Department of Bio-science, Rani Durgawati Vishwavidyalaya, Jabalpur and Dr R C Rajak, Department of Bio-science, Rani Durgawati Vishwavidyalaya, Jabalpur.

8. Mandal, Asitbaran. Ecophysiological investigations on commercially important diosgenin yielding plants in Darjeeling District. NBU.

9. Mathur, Moni. An ecological study of the algal flora of the River Narmada at Hoshangabad. HS Gour. Dr (Smt) N Pathak, Department of Botany, Govt Narmada Postgraduate College, Hoshangabad and Dr A D Adoni, Department of Botany, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

10. Muktesh Kumar, M S. Morphological studies in Orchidaceae. Calicut. Dr K S Manilal, Prof, Department of Botany, University of Calicut, Calicut.

11. Rajani, B. Photosynthetic sulphur bacteria and their application in hydrogen production. Osmania.

12. Ramana Rao, V V. Wide hybridization, tissue culture and protoplast studies in *Cajanus* and *Rhynchosia* spp. Osmania.

13. Ramteke, Meghnath Satuji. Aerobiological studies at Aurangabad. Marathwada. Dr B N Pandey, Reader, Department of Botany, Marathwada University, Aurangabad.

14. Sahu, Pradeep Kumar. Studies on the flora of Sagar District. HS Gour. Dr T R Sahu, Department of Botany, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

15. Sharma, Rajesh Kumar. Blue green algae of paddy fields and their role in nitrogen economy. HS Gour. Dr A D Adoni, Department of Botany, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

16. Shukla, Ashok Kumar. Spoilage of wheat and sorghum produced by thermophilous fungi during storage. HS Gour. Dr P C Jain, Department of Botany, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

17. Sounder Raj, V. Morphogenetic studies in pulses. Bangalore. Dr B H M Nijalingappa, Prof, Department of Botany, Bangalore University, Bangalore and Dr D H Tejavathi, Department of Botany, Bangalore University, Bangalore.

18. Srivastava, Vibha. Isolation of mutants and investigation on physiological changes following insertion of Ti plasmid in higher plant genome. JNU. Prof Sipra Guha Mukherjee, School of Life

Sciences, Jawaharlal Nehru University, New Delhi.

19. Subhashini, T. Physiological studies in *Oscillatoria chalybea* with reference to biomass and photoproduction of hydrogen. Osmania.

20. Subramani, J. Cellular selection and immobilization of solanum cells for the over production of steroids. Baroda.

Agriculture

1. Bahri, Shivani. Interactive action of some leaf rust resistance genes in wheat. PAU.

2. Chikhale, Nandkishor Janardanrao. Estimates of genetic variance and predicted response to selection under three methods of recurrent selection in pearl millet, *Pennisetum glaucum* (L) R Br. Punjabrao. Dr P B Ghorpade, Asstt Prof, Department of Agricultural Botany, College of Agriculture, Nagpur.

3. Choubey, Saroj Kumar. Studies on the succession and certain management tactics of insect pests of maize. BHU. Dr D S Misra, Reader, Department of Entomology and Agricultural Zoology, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

4. Choudhary, Umesh. Studies on banded leaf and sheath blight of maize, *Zea mays* L caused by *Rhizoctonia solani* Kuhn f sp. *sasakii* Exner. Birsa Agrl.

5. Dangar Ram. Line X tester analysis for green pod yield and its components in french bean, *Phaseolus vulgaris* L. BHU. Prof C B S Rajput, Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

6. Deore, Shankar Kashiram. Effects of presowing moisture treatments, iron pyrite and *Azospirillum* on the properties of vertisol and the performance of rice under upland conditions. M P Krishi. Dr K R Sonar.

7. Singh, Daya Shanker. Effect of nitrogen, phosphorus and GA on growth, flowering, fruiting and fruit quality of Guava, *Psidium guajava* L. BHU. Prof A N Maurya, Head, Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

8. Singh, Janamejay. Effect of urea, GA and BA on vegetative growth, flowering, fruiting and fruit quality in mango, *Mangifera indica* L. BHU. Dr C B S Rajput, Prof, Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

9. Singh, Surendra Narain. Genetic analysis of yield and yield components in linseed, *Linum usitatissimum* L. Birsa Agrl.

10. Subhash Chander. Improvement in drying technology of different types of Katha to reduce the losses. Y S Parmar. Dr A N Kaushal, Department of Forest Products and Utilization, College of Forestry, Nauni, Solan.

11. Yadav, Jagdish Prasad. Induction of polyploidy and par-

technology-1.

SPECIALIZATIONS

Economics (CC): i) Quantitative methods of Economics

ii) Political Economy of Development

Punjabi: Modern Punjabi Poetry OR Comparative Study.

Human Bio: Candidates should hold M.Sc. and Ph.D. degree in Anatomy/Physiology/Human-Biology with 5 years Postgraduate teaching experience as Lecturer and should be able to teach both Anatomy and Physiology at Postgraduate level.

Mathematics: Differential Geometry, Algebra, Functional Analysis, Theory of Functions, Topology, Measure Theory and Continuum Mechanics.

Bio-Tech: Food Science & Technology/Microbial Technology/Food Biochemistry/Genetics.

3. LECTURERS: Bio-technology-2, Statistics-1, Zoology-1, Social Work-1, Education and Comm. Services-1, Sociology (CC)-1, Defence Studies (CC)-1, Sri Guru Granth Sahib Studies-1, Economics (Regional Centre Bhatinda)-1.

SPECIALIZATIONS

Bio-tech: Food Science & Technology/Microbial Technology/Food Biochemistry/Genetics.

Statistics: Preferably in one of the following:-

i) Computer Programming (one year PG Diploma of a recognised Institution)

ii) Probability

iii) Applied Statistics

Zoology: Cytogenetics/Antomology / Paracytology/Physiology.

Sociology (CC): Preference to Ph.D. candidates. Published work on Punjab in Punjabi.

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4. The eligibility of every candidate will be determined on the basis of the qualifications acquired by him up to the last date fixed for receipt of the applications

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iii. Qualifications Prescribed: 1. M.Sc. in biotechnology or Aquaculture or M.Tech. in biotechnology or M.F.Sc.

2. Working experience in Bio-technology/shrimp Nutrition.

iv. Scale of Pay: Rs.1,500/- per month.

II. Mariculture of Spiny lobsters

i. Name of Post: Research Fellow

ii. No. of Posts: Two

iii. Qualifications Prescribed: 1. Master Degree in Fisheries Science, Aquaculture, Marine biology, Zoology or Life Sciences.

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iv. Scale of Pay: Rs.1,800/- per month for first two years and at Rs.2,100/- for third year.

III. Role of Nonhormonal growth promoters in Common Carp fry rearing

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ii. No. of Posts: One

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iv. Scale of Pay: Rs.1,200/- per month

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3. Nationality

4. Date of Birth and Age

5. Present Address for Communication

6. Qualification

(True copy of mark list and provisional degree certificate are to be enclosed)

7. Experience

8. Publications

9. Signature of the Candidate

The candidate should have the Qualifications mentioned above with OGPA of not less than 3.5. The age limit for the fellowships is not above 40 years as on 1.7.91. The applications should reach the Dean, Fisheries College and Research Institute, Tuticorin 628 008 on or before 8.11.91.

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Editor :
SUTINDER SINGH

On Creating a Fully Literate World

Onkar Nath Srivastava*

Creating a literate world is such a big challenge that it is beyond the capacity of one country or organisation alone to meet it. Hence the year 1990 was proclaimed as the International Literacy Year (ILY) in 1987 by the United Nations General Assembly in response to an appeal made by the United Nations Educational Scientific and Cultural Organisation (UNESCO) so that there could be global mobilization of consciousness and resources.

During the last 40 years or so, since the 1948 Universal Declaration of Human Rights affirmed the right of everyone to education, no doubt efforts have been made by different countries to implement this right with different degrees of success. Despite the appreciable progress made in education and greater spread of literacy during this period, the crisis has continued to grow and deepen in this crucial area. As a result, today one in five adults in the world cannot read or write, which makes the total number of such people approach the 1000 million mark. What is still more 100 million children, who presently have no access to schooling, are on the way to swell the ranks of these adult illiterates.

Staggering as these figures are, we often try to seek some respite by diverting our attention from the world as a whole to smaller regions. But we feel flabbergasted to note that even the industrialised world is not free from the problem of illiteracy. It is sick with the malady of functional illiteracy resulting in less productive and less enlightened citizens.

Of course, the developing world is sinking by the sheer weight of basic illiteracy, which makes its victims incapacitated to meet even basic needs. How shakingly unnerving it is to note that 75 percent of the world's estimated 1000 million adult illiterates are Asians. And how shamefully disgraceful and depressing it is to accept that India has the largest number of adult illiterates. UNESCO has made a list of nine countries which have adult illiterates of over 1 crore each. India heads this list with 26.4 crores of illiterates followed by China with 22.9 crores.

The pitiable plight of illiterates is well known. We know that illiteracy adversely affects their lives, their work and their place in society, yet they continue with it. We at the same time know that the struggle against ignorance and illiteracy is age old. Then why this spurt now? Why this mood of fighting together to a finish? Why at all accept the formidable challenge of creating a fully literate world?

On the heels of the current century the different nations of the world are able to perceive more acutely the range, gravity and complexity of problems which confront them. At the same time they are able to have a more vivid view of the interdependence of the world and to perceive the sense of interdependence in a stronger measure as they find the international climate more cooperative and committed wherein the well-being of all human beings is the focus and purpose of societal developmental efforts, and human development is perceived as the core of any developmental process.

In this context the crucial role of education could be marked. As the most essential condition and a powerful agent of progress, it shapes us as individuals and as societies. This focuses attention on basic learning needs which consist of knowledge, skills, attitudes and values upon which

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individuals can build their lives even if they receive no further formal education. Without making adequate provision to meet the basic learning needs it is hard to imagine as to how it would be possible to equip ourselves to face the challenges of the twenty first century at a time which might turn out to be the beginning of a new era in world affairs. So it is the present predicament of the world situation evinced by events, such as dramatic reduction in cold war tensions and global movements towards peace, and of the prospective pace and pattern of life along with its problems in the coming century that have motivated the current spurt in literacy efforts, the resolve to give a final fight to illiteracy and to meet the formidable challenge.

With the challenges of the 21st century staring us in the face, the realisation is very pressing that the world cannot let the present trends in education continue. As such there have been frantic efforts to find support for a global initiative to meet the basic learning needs of everybody and to set a new agenda for basic learning and to have a new vision for the 1990s in this context. As a result there was organised a world conference on Education for All from March 5 to March 9, 1990 at Jomtien(Thailand) sponsored mainly by UNDP, UNESCO, UNICEF and the World Bank.

1500 delegates from more than 150 countries who attended the conference included the presidents of a number of states, the executive heads of the UNDP, UNESCO, UNICEF and the World Bank, cabinet ministers and senior officials from the education, planning and finance ministries besides eminent educators, educationists, representatives of non-governmental organisations and of the media. The conference addressed itself to three main issues: financing of education, access and equity in basic education, and the quality of education. As it did so, it also discussed a number of other important and relevant issues and questions which had a bearing on mobilizing renewed global commitment to meeting basic learning needs. The conference culminated in adopting the World Declaration on Education for All as follows: "We, the participants in the world conference on Education for All, reaffirm the rights of all people to education. This is the foundation of our determination, singly and together to ensure education for all". The declaration identifies principles and objectives. At the conclusion of the five day conference the delegates agreed on the framework for action to meet basic learning needs which dealt with the methods by which the objectives could be achieved.

The momentum generated at Jomtien was reinforced when only 2-3 weeks later a meeting, "The International Congress on Planning and Management" was organised in Mexico where 270 experts gathered to deliberate on "a new form of planning" and a modern and efficient management of education. With the provision for such follow up actions at the national and international levels we can look forward to having more of them in future. An example of follow up action at the country level is the needs assessment to ascertain what resources are

required for education.

While the UNDP is inclined to double or triple its technical assistance to meet basic learning needs, the World Bank is focussing its attention to developing the national institutions necessary to improve the quality of learning and to improve the education of girls. Similarly UNICEF is in a mood to quadruple its support in terms of funds. Regarding the contribution of his organisation Federico Mayor, director-general UNESCO observed :

"UNESCO has made literacy and basic education the absolute priority of its medium-term plan and is substantially increasing its programme support for basic education. The international literacy year (1990) is the starting point for UNESCO's ten year programme to eliminate literacy. Promoting regional cooperation and exchange of experiences will be a key concern of this programme".

In the light of the World Declaration and Framework for Action plans, policies and programmes at the national, regional and international levels have been drawn up so that the goal of universal literacy be achieved by the year 2000. To attain this objective the countries of Asia and the Pacific will have to educate 62 million adults (15 years +) each year. These countries launched a UNESCO coordinated Asia-Pacific Programme of Education for All(APPEAL) in 1986 to commemorate the 40th anniversary of the founding of UNESCO.

Let us hope that these efforts will mobilise millions of men and women and engage them in literacy promoting activities so that the vision of Education for All is pushed from rhetoric towards reality by the end of this decade. It may be pointed out that the success of this venture would have better chances if the literacy campaigns are accompanied by change in other areas of society. In this connection it is worthwhile to recall what the Brazilian sociologist and educator Paulo Freire has said, "the literacy process must relate speaking the word to transforming reality and to man's role in the transformation".

As attention is focussed on this transforming of the reality the world Declaration on Education for All referred to above and adopted at Jomtien reminds us of an earlier declaration adopted at the International symposium for literacy held at Persepolis(Iran) in 1974 which says in part :

"Literacy work is of worldwide concern requiring that ideological, geographical and economic distinctions be transcended.

While its primary field of operation is in the third world, the new international order gives it a universal dimension through which the concrete solidarity of nations and the common destiny of man must find expression."

University as a Complex Organization

A Study in Inter-Organisational Relationships

M.R.Rao*

Organizations engaged in the provision, promotion and utilisation of higher education in India – the university, the State, the University Grants Commission (UGC) and other related agencies of the Union & States such as All India Council for Technical Education, Bar Council of India, Indian Medical Council, State Council of Higher Education etc., and the knowledge users – are considered to be partial systems of organizations forming the total system of higher education. Each has independent status and its own organisation structure; yet, all of them are interrelated to interact with each other in the furtherance of higher education. The university offers instruction and undertakes research; the State provides the bulk of the university's finances; the UGC and other related agencies of the State provide impetus to the university by way of grants and guidance for the purpose of undertaking new programmes of teaching and research; and the organizations which employ the graduates and knowledge produced by the university are the knowledge users.

The University is the focal centre of the system, for, it obtains the inputs mostly from the agencies of the State and produces the output of graduates and knowledge for the use of society. It is an organized knowledge centre engaged in the enterprise of knowledge. It is "a complex multiple task enterprise, which, to perform its many tasks, has to relate to a complex environment" which includes "its local community, its catchment areas for faculty and students, its State or nation, and the reference groups that pass judgement on its academic status..... Their activities are intricate and interrelated."¹

An organization is best understood as a system; it consists of consciously coordinated activities of two or more individuals, groups, or subsystems, working together and willing to cooperate in order to achieve the common purpose. Common purpose is the unifying concept underlying and implicit in the coordination of activities, and communication is essential for coordination. Each of the individuals, groups, or subsystems has "specific objectives, specific locational characteristics,

specific time schedule and involves a specific associational situation".²

The executive unit of the organization coordinates the activities of the subsystems in order to realise its objectives. The university has several subsystems – the Syndicate/Executive Council/Board of Management, Senate and Academic Council, and the teaching departments, institutes, centres, postgraduate centres and constituent colleges and/or affiliated colleges. Some of them are autonomous in themselves to a considerable extent. The university's executive unit, i.e., the Syndicate/Executive Council/Board of Management coordinates their activities.

The university is a complex organization because in addition to coordinating the activities of its subsystems, it comes into interaction with the partial systems external to it, in order to realise the objectives common to the entire system. While it interacts with its internal subsystems under conditions of structured authority, it interacts with the partial systems under conditions of unstructured or partially unstructured authority. The other partial systems may seek to influence and control the university to some extent. There is no single coordinating authority covering the total system of higher education. The New Education Policy - 1986 (NEP) has realised the need for greater coordination at the national level and stated: "In the interest of greater coordination and consistency in policy, sharing of facilities and developing interdisciplinary research, a national body covering higher education in general, agricultural, medical, technical, legal and other professional fields will be set up."³ With reference to interaction between organizations, Etzioni has observed that we "know a great deal about interaction among persons, something about interaction among groups, but surprisingly little about interaction among organizations".⁴

Indian universities have come into existence through Acts of the State Legislatures, except ten universities created by the Central Government and institutions deemed to be universities by the U.G.C. In addition to Central, State and deemed universities, there are institutions of national importance such as IITs, All India Institute of Medical Sciences, New Delhi, Indian Statistical Institute, Calcutta, IIMs etc. There are a large

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number of research organizations both in the Government and private sectors. All these organizations are partial systems of organizations forming the total system of higher education.

Here university means State University and conventional university awarding degrees/diplomas in all disciplines. The single faculty specialised university such as Agriculture, Technological, Medical & Health, Music, Arts, Literature, Culture etc., have limited inter-relationships with partial systems of higher education when compared to conventional Multi-faculty universities.

This study excludes university's interaction with individual customers, supplier organizations, clients and so on. The university may interact with some/all organizations depending upon its resource structure such as physical facilities, equipment, aggregate skills and competencies, accumulated information and knowledge. For example, a university without having ocean science department cannot interact with the Department of Ocean Development, Government of India. Further, university interaction with some organizations is statutory and with others it is voluntary. University interaction with State, UGC, IMC, AICTE etc., is highly statutory, when compared to other organizations such as various funding agencies like CSIR, ICSSR etc.

Another aspect of inter-organizational interaction in the system of higher education in our country is the interdependency. The degree of interaction between the university and partial organizations in the higher education system depends upon the degree of interdependency. For example, the university is highly dependent on the State Government and its interaction with State is highly intensive when compared to other partial organizations in the higher education.

The figure shows university organization as a system composed of several sub-systems such as Teaching cum research departments constituent/affiliated colleges, institutions, centres etc. It imports from its environment some inputs in the form of students and requisite resources converts them into its output of graduates (or failures) and research information and exports the same into the world of knowledge users. Its activities are regulated within the system through its regulating bodies such as Syndicate/Executive Council, Senate, Academic Council, Board of Studies, etc. Thus the system has a boundary which separates it from its environment. The inputs are transacted at the boundary and exports its output for the knowledge users. The university is free to interact for its import-conversion-ex-

port process with various funding, regulating and user organizations outside its boundary. The most important funding organization for the State University is the State Government. The State Council of Higher Education has been suggested as a new agency for the coordination between the universities and State Government as well as between the universities and the UGC. The national apex body for the coordination and determination of standards in the university is the UGC. University's interaction with the UGC is highly significant when compared to any other organization in the system of higher education because it is not only the aid giving agency but also the regulatory organization. The most important inter-university organization is the Association of Indian Universities. It is a service organization for all universities including deemed universities and institutions of national importance. Like UGC, the ICAR is the aid giving agency for the agricultural universities. It also promotes research in the general universities. Indian Medical Council, All India Council for Technical Education, Bar Council of India are three important regulatory organizations for the medical, technical and legal education in the country respectively. University's interaction with these organizations is statutory. The various funding agencies of the Central Government are promoting research in the universities. Amongst these, the most significant organization is the Council of Scientific & Industrial Research. Universities are highly dependent on these agencies for their research activities. Finally universities' output of graduates and research information will be absorbed by the user organizations, namely knowledge users.

This paper makes a modest attempt to present inter-organizational relationship of a University with the above mentioned organizations.

University and the State Government

The university's interaction with the State Government is the most significant one because the State Government creates a university, appoints its Vice-Chancellor, nominates some of the members on the Executive Council/Board of Management and provides the bulk of its finance.

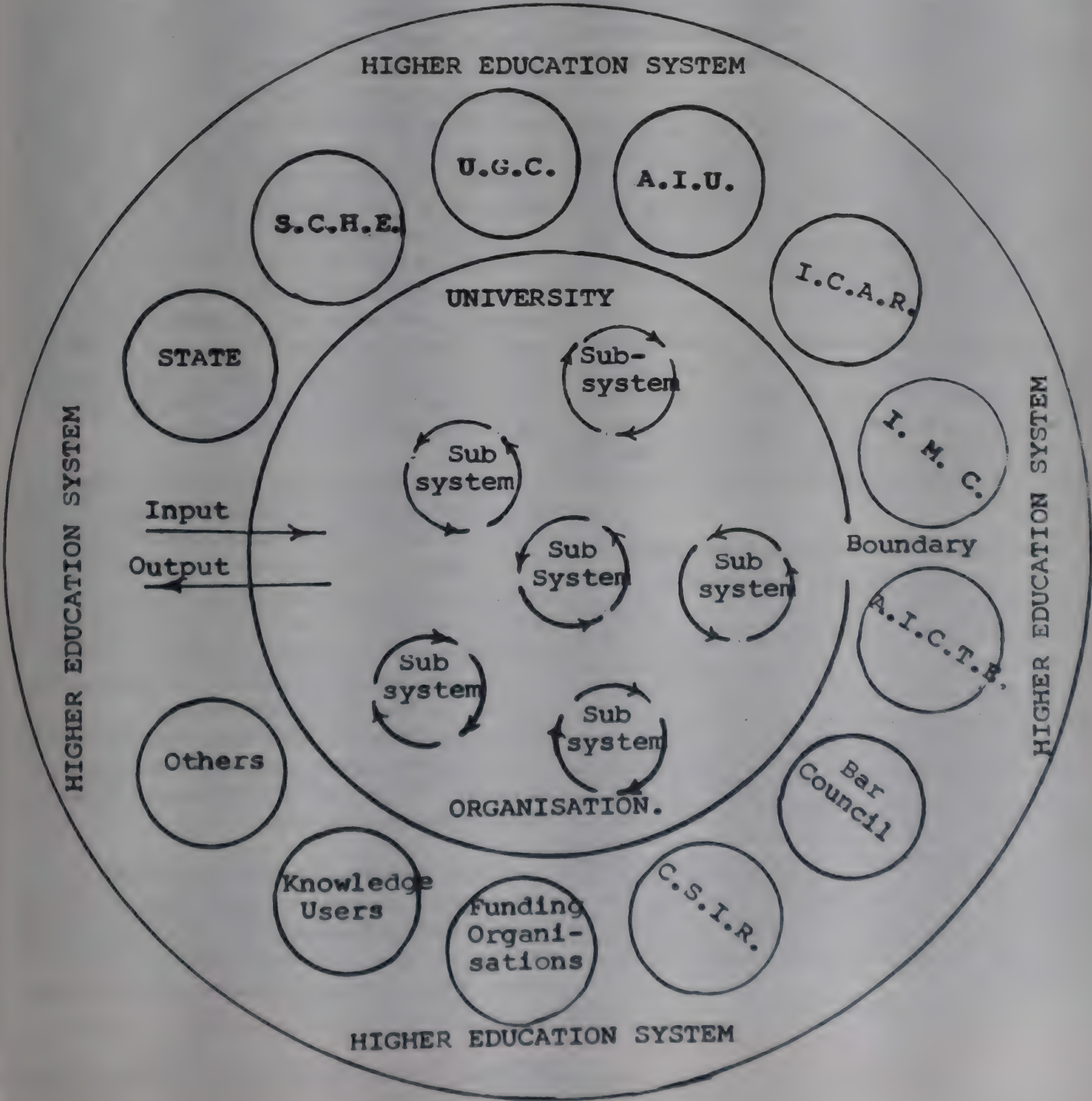
New universities are established in India predominantly for two reasons: (1) to provide academic leadership and administer affiliated colleges which are expanding in number and the existing university cannot manage a large number of affiliated colleges, and (2) the expansion of their number is in response to the evergrowing demand for postgraduate education. Instead of creating a new university to administer the additions to colleges, appropriate administrative tech-

niques may be adopted by the existing university. Some experts have suggested that the university appoints a Special Officer called the Rector or Pro- Vice-Chancellor for the purpose of administering a large number of colleges.

According to the Section 11A(1) of Bombay University Act 1974 "Where in the University, if there are more than one hundred and ten affiliated and conducted colleges and recognized institutions, and the Vice-Chancellor of the University is of the opinion that its is expedient to create a post of a Pro-Vice-Chancellor, he may request the State Government to create such a post. On receipt of such a request, the State Government may, after making such inquiries as it deems fit, create such a post by notification in the Official Gazette". The UGC Committee Report on management of universities has suggested that in an affiliating university there should be a full time post of Pro-Vice-Chancellor/Dean

of colleges.

The second aspect of the expansion in numbers is the evergrowing demand for postgraduate education. This may be met by (1) increasing the intake in the existing university, (2) opening University's postgraduate centres at new locations, (3) allowing some affiliated colleges to offer instruction in some postgraduate courses, and (4) offering postgraduate courses through distance education. The first approach has been adopted by several universities through the mechanism of diversification of postgraduate courses and increased intake in the existing courses with the help from the State and the UGC. But they cannot indefinitely expand the facilities for postgraduate studies at the university campuses. Some universities with the approval of the State and assistance from the UGC have opened PG centres. It appears that most of such centres are mini replicas of the universities. They have been set up to meet the



expansion in numbers but not always for the purpose of educational innovation. The UGC has issued guidelines of conditions and norms for introduction of postgraduate courses in Arts, Social Sciences and Sciences in affiliated colleges. Most of the universities have permitted its affiliated colleges to offer postgraduate courses. The last report is that universities can offer undergraduate & postgraduate courses through correspondence/distance education.

In spite of all these alternatives being available to universities, States have established universities either without consultation or against the advice of UGC or without adequate need or facilities. The Sapru Committee had recommended that the UGC Act should be amended to make it obligatory on the part of State Government to consult the Commission before setting up a new university. Legal remedy is not a solution to the above problem but there should be a convention by agreement between the States and UGC that the States should not create a university without prior consultation with the UGC.

The recent trend is establishment of new universities on the basis of faculties such as engineering, medical & health, music & dance, literature, culture, etc. It is high time that UGC should declare its policy towards establishment of single faculty universities. On the other hand, there is a strong shift in higher learning towards trans-disciplinary* structures.

The university interacts with the State with regard to appointment of the chief executive of the university i.e. Vice-Chancellor. His appointment is the most important decision to be taken in the university's management; at present, in many universities, the complete authority for making this decision rests in the hands of the State.

Broadly there are three methods in the appointment of Vice-Chancellor: Election, Nomination and Selection. Originally the Vice-Chancellor was appointed through election and this method has been given up in most universities. Another extreme method was appointment of Vice-Chancellor through the method of nomination by the State. Under the method of nomination of the Vice-Chancellor the State alone takes the full

* The term "trans-disciplinary" refers to crossing the boundaries between disciplines of study: it includes, both the multi-disciplinary and inter-disciplinary approaches, uses stores of knowledge and viewpoints from many disciplines, expands a discipline, provides greater understanding, but tends to leave the general discipline boundaries more or less intact. On the other hand the interdisciplinary approach integrates concepts and ideas, restructures field, changes subject matter boundaries, bridges theoretical gaps and tends to develop more logical and coherent structures. It even results in the formation of new 'hybrid' disciplines like cybernetics, biotechnology, information theory, etc.

and direct responsibility for the decision and no scope is allowed to the university on the one hand and the UGC on the other to participate in decision making. The selection method, adopted and given up in some universities earlier, is coming into vogue again. Compared with the method of nomination, the selection method restricts the appointing power of the Chancellor to the list of persons selected by the selection/search committee. Here, the question is who should be on the committee? If the committee consists of representatives of the university, the State and the UGC, the three important partners in higher education will assume collective responsibility for the selection so offered to the Chancellor. The members of the Selection Committee so constituted should be persons of eminence in higher education, well versed with the objectives, functioning and problems of the university. But as it happens more often that the State nominates a senior I.A.S. Officer of the education department on the selection/search committee who in turn is persuaded to propose the name suggested by the Government. The Chancellor should enjoy the freedom of selecting the person from among the persons selected by the selection committee. But some States kept the power of recommending one person to the Chancellor for appointment as Vice-Chancellor from among the panel and the Chancellor shall appoint such person as Vice-Chancellor. Further the State is competent to call for a fresh panel if it is considered necessary and the search committee shall submit a fresh panel to the Government. When State is taking the decision of recommending one person for appointment of Vice-Chancellor from among the panel means the Chancellor is ratifying the decision taken by the Government.

In general, the individuals appointed to be the Vice-Chancellors of the State universities belong to the State concerned. In the case of Central universities, the selection committee considers for vice-chancellorship, eminent persons drawn from all over the country. If the selection committee of the State university adopts, by convention, a similar practice, and does not confine its search within state boundaries, it is likely that eminent persons who have distinguished themselves at the national level will be appointed. In this connection, it will be helpful to the selection committee of the State university, if the UGC prepares a list of eminent educationists drawn from all over the country.

Certain states nominate members in addition to ex-officio members in the Executive Council. Of late Andhra Pradesh Government has nominated M.L.As. and Ex-M.L.As. on the Board of Management in universities. While selecting the members of the Executive

Council of a rural university, University Education Commission 1948 suggested that it is desirable to keep in view "General competence, character, judgement and experience, free from and superior to political or academic cliques or partisan inclination, influence".⁵ It should be the guiding principle for nominating persons on Executive Council/Board of Management of universities.

Another important area of interaction between the university and the State is in relation to financing of the university. As the tuition and examination fees of the university do not amount in general to more than a quarter of the university's budget, it depends on the State for the bulk of its financial needs.⁶ Similar is the situation of the universities of United Kingdom, where, about 70 percent of the current expenditure and 90 percent of the capital expenditure is provided by the British Government.⁷

The State gives financial support to the university in the form of annual block grants and additional grants. The block grant usually covers the university's deficit on current expenditure, and the State's committed expenditure towards the university's development schemes and towards university's matching contributions for development schemes sponsored by UGC. Additional grants are given to cover the university's expenditure towards revised salaries and allowances of its employees as approved by the State. The university presents to the state its case for financial aid; the State's ministry of education considers it and determines the quantum of grants to be given. In this context, it is to be noted that three officials of the State – the Secretary to the ministry of finance, the Secretary of Education and Commissioner/Director of higher education – are ex-officio members of the university's Syndicate/Executive Council/Board of Management. The former is expected to be aware of the university's financial condition and the latter is the agent of communication between the State and the University.

There has been some criticism of the working of block grants. The State may reject a claim by the university on the ground that it is not the normal expenditure of the university. "Government's own perception of 'reasonable expenditure' and 'normal activities' clashes with those of the university administrators."⁸ The State may feel that the university shows increasingly larger deficits from year to year with a view to getting larger grants and thus may not give the full amount requested. The university may incur more and more deficits from year to year, as it is confident that the State will come to its rescue in case of financial crisis. Experience indicates that the university asks for more and the State

grants less and yet, the former is able to survive financially!

While the university is the aid receiving organization and the State the giver of the aid, the UGC is interested in the adequacy of the State's maintenance grants to the university, for, without sufficient maintenance grants, the university cannot undertake development schemes in which the UGC is interested.

The Conference of Vice-Chancellors at Srinagar (October 6, 1989) recommended: "In future the UGC in consultation with State Government should determine the needs of each university and a categorical assurance be taken for release of matching grants."⁹

At present, the State alone has the authority for determining the quantum of block grants. If the university, the State and the UGC were to take this decision together, it will reflect the views and interests of the three main parties. In this connection, the Gajendragadkar Committee has recommended the appointment of a committee, at regular intervals, to determine the annual block grants; such committee may consist of representatives of the university, the UGC and the State's ministry of education. Now the State Council of Higher Education can play a vital role in determining block maintenance grant for all the universities in the state. The Programme of Action (POA) to the NPE-1986 has envisaged that one of the major functions of the State Council is to assist the State Government in determining the block maintenance grant. Now the Vice-Chancellors need not go and beg the State bureaucracy from time to time in convincing the State regarding the financial needs of the university. Now the Chairman, State Council of Higher Education may represent the financial needs of the State universities to the State Government. The University interacts with the State Council of Higher Education which acts as a liaison between the State and the university.

University and the State Council of Higher Education

The New Education Policy has emphasized the need for an organization for the coordination and determination of standards in higher education at the State level and suggested an organisation known as State Council. "State level planning and coordination of higher education will be done through Council of Higher Education. The UGC and these Councils will develop coordinative methods to keep a watch on standards."¹⁰ Currently in most of the States there is no state level planning and coordination of higher education. The State Council of Higher Education is a coordinating body between the universities in the State and State Government and universities and the UGC. It can understand and ana-

lyse the problems of the universities and solutions to the problems may be arrived through academic process rather than through State bureaucracy. The State departments of education and finance, should not be jealous of the State Council of Higher Education. The State Vice-Chancellors jointly and individually may represent their problems to the State Council of Higher Education and in turn it may suggest suitable solutions to the State as well to the UGC. The State is not parting with the power but it is parting with the responsibility to the State Council of Higher Education which is supposed to be the state's duty.

The general function of the Council is to coordinate and determine standards in institutions of higher education or research and scientific and technical institutions in accordance with the guidelines issued by the University Grants Commission. Thus it acts as a linking pin between the universities of the State and UGC and other bodies which are apex bodies for determining the standards of higher education in the country. The diverse channels of communication are integrated through single channel of communication between the State Council of Higher Education and the UGC and other central agencies. It proposes an overview report on the working of the universities and the colleges in the State and submits the report to the UGC. Some are critical about the functioning of the State Council of Higher Education on the ground that it is a middle agency between the State and universities and universities and the UGC and other agencies. Within the State the universities have increased; there is no coordination among the universities within the State; there is no academic collaboration among the universities within the State; there is no agency to conduct common entrance tests within the State for various professional courses; the State has no knowledge of academic progress and achievements of various institutions/universities/colleges in the State; the State has poor knowledge to integrate academic planning of individual university with State planning of higher education and identification of research areas, etc. Finally the State education department cannot provide necessary academic leadership to the institutions of higher education in the planning and development. Some agency is necessary at the state level to coordinate various academic activities of the institutions/universities/colleges and planning and development of institutions of higher education in the State.

The interaction of university with the State Council of Higher Education is horizontal relationship rather than vertical. The vertical relationship generally creates superior-subordinate structure whereas horizontal

relationship creates participation structure. The Vice-Chancellors being academicians should prefer participation role rather than subordinate role.

The POA has suggested that the following functions may be entrusted to the State Council of Higher Education :

1. Preparation of consolidated programmes of higher education in each State;
2. Initial scrutiny of the development programmes of universities and colleges;
3. Assistance and advice to UGC in respect of maintenance of standards;
4. Assistance to State Governments in determining the block maintenance grants;
5. Encouragement of the programmes of autonomous colleges;
6. Monitoring the progress of implementation of programmes and assessment of performance of institutions; and
7. Advising the State Governments in setting up new institutions.

Andhra Pradesh Government is the first State in the country to establish the State Council of Higher Education at Hyderabad. The Council's functions are almost the same as mentioned above but they are enlarged and classified on the basis of their nature into three categories: (i) Planning and Coordination Functions; (ii) Academic functions; and (iii) Advisory Functions. It can also perform any other function necessary for the furtherance of higher education in the State.

A.P. State Council of Higher Education was set up for all the universities including technological, agriculture, medical & health universities. It has to interact with various ministries in the State, i.e., Higher Education, Technology, Agriculture, Medical & Health and national organisations such as UGC, AICTE, ICAR, IMC, etc. The inter-organization interaction between the State Council of Higher Education and other organisations should be fruitful and conducive to furtherance of higher education in the State.

University and the University Grants Commission

Originally the UGC was constituted by an executive order of the Government of India in 1953 and later it was given the present form by an Act of Parliament in the year 1956 called the University Grants Commission Act. The preamble states that it is "An act to make provision for the coordination and determination of

standards in universities and for that purpose to establish a University Grants Commission". It provides grants as means to achieve the stated purpose of maintenance of standards of teaching, examination and research in universities. During the first three decades (1953-83) it acted more as a funding agency rather than a funding-cum-regulatory agency. It is now acting as regulatory-cum-funding agency.

Generally the UGC should interact with the State Governments before and after the establishment of a university. But some State Governments are establishing universities through their sovereign power without consulting the UGC. As mentioned earlier the predominant reason for the creation of a new university is to administer additional colleges since the colleges affiliated to the existing university are increasing in number. The UGC criteria for recognising a university for grants under section 12 B may not be necessary for the State Governments for establishing a new university. The Chairman, UGC has stated: "Our problem is that our criteria for recognising a university for grants must have a number of postgraduate departments, one Professor for each department, two Readers, a certain number of lecturers per department, so much infrastructure and so on."¹¹ Some State Governments are reluctant to take guidelines from the UGC with a preconceived notion that the UGC may not approve the proposal of establishing a new university. It is desirable that the State Government should interact with the UGC from the time of formulation of proposal instead of interacting with it after the establishment of a university for the purpose of grants.

When once a university is qualified through fulfilment of conditions laid down by the UGC, it will be admitted under 12 B of the Act for financial assistance. The UGC provides financial assistance through the mechanism of various committees among which the visiting committee is the most important. The Estimates Committee felt "that the visiting Committees can play a vital role in assessing the performance of the universities during the previous plan period and by providing general direction and perspective for future development. Their fields of activities include an in-depth study of (i) the role played by the university in developing programmes of higher education; (ii) relevance of the programmes; (iii) interaction with the society and other universities and institutions in the region; and (iv) impact on national development".¹² This Committee visits the university and assesses its needs for a five year period (plan period) and gives its report to the UGC. It is expected to open mutual communication between the UGC and the university and to create a direct

encounter of persons and their objectives and attitudes rather than files and papers. With the help of grants given by UGC, the university acquires new buildings, equipment, books & journals, and strengthens and expands its teaching and research facilities.

Outside the plan also, it gives aid to the university which is significant for the improvement of quality of education. UGC provides financial assistance under the schemes of "unassigned grants" under four groups: (A) Travel grants for attending the national and international conferences, (B) Conducting seminars and symposia etc., (C) For publication of learned/research work including Ph.D. theses, and (D) Support for research for undertaking minor research projects. Under the revised scheme, a separate publication grant is being merged with 'unassigned grants'. The UGC should insist on universities to publish a "Journal of Research" periodically (quarterly/half-yearly/annually) on the basis of convenience of the university. The journal should publish results of research activities and the abstracts of published Ph.D. theses. The UGC should allow the university to finance the publication of Research Journal from the publication grant of unassigned grants.

The UGC's prestigious schemes for the improvement of postgraduate teaching and research are: (1) Centres of Advanced Study (CAS), (2) Departments of Special Assistance (DSA), and (3) Departmental support for Research (DSR). The centres of advanced study are expected to work for excellence in advanced study and research in the field. The conference of Vice-Chancellors in 1989 has recommended that some of the centres of advanced study in different areas which have reached the state of excellence in terms of infrastructure facilities may be strengthened and considered for upgradation to the status of "National Centres". If the DSAs have reached high standards in the areas of specialisation they may be upgraded as "Centres of Advanced Study". Similarly the DSR may be developed to the level of DSA. The policy of upgradation is more pragmatic than straightaway declaring it as a "Centre of Advanced study".

The assessment committees evaluate the work of CAS/DSA and submit progress report to the UGC including whether to continue or discontinue the assistance for further period. The Standing Committee has discussed how long the assistance should be continued to CAS/DSA. It is of the opinion that those centres which have a standing of 15 years or more should stand on their own legs. However the UGC may provide grants for the maintenance of equipment and books and

journals. In spite of the UGC's best efforts the academicians of universities have not bagged sufficient number of prestigious national and international awards when compared to non-university sector including deemed universities.

The UGC has launched a scheme known as strengthening of infrastructure in Science & Technology popularly known as "COSIST" (1983) for those departments of science and technology which have already achieved high standards. It is an incentive scheme and provides infrastructural inputs especially equipment to do even better and to raise the standards comparable with international standards. Under the COSIST, the UGC provides sophisticated equipment as a major part of finance in addition to the grants for building, library, books, staff and contingency for a period of five years.

The UGC is optimistic that through COSIST there will be changes in methods of teaching, new techniques of evaluation and examination, strengthening of curriculum etc., in the postgraduate education. The UGC is insisting on the universities to declare at least those departments which are having CAS, DSA, DRS, and COSIST as "Autonomous departments". The UGC should make it a precondition before granting assistance under the above schemes.

Another innovative venture of the UGC is the establishment of inter-university centres with a provision of common facilities, services and programmes for a group of universities or for the universities in general. The basic objective is interaction among the scientists of the universities in the subject. The exchange of ideas and views among scientific community may be possible through the instrument of this organization. The organization is an autonomous institute within the university system accessible to other universities. The UGC has established inter-university centres in Nuclear Sciences (JNU, New Delhi), Astronomy & Astrophysics (Pune) etc. Besides these schemes the UGC is supporting research in Hi-tech areas, major & minor research projects; sponsoring teaching & training programmes in biotechnology, atmospheric sciences etc.

Any effort at promotion of higher education must consider the importance of colleges which account for 85 percent of undergraduate enrolment, about 55 percent of the postgraduate enrolment and as much as 14 to 15 percent of the research students. The UGC has given grants to the colleges to enable them to acquire equipment, books & journals, buildings and to strengthen their teaching faculty through FIPs and other

qualitative improvement programmes such as College Science Improvement Programme (COSIP) and College Humanities and Social Sciences Improvement Programme (COHSIP). For the purpose of strengthening PG studies, special financial assistance is given to colleges upto Rs. 3.00 lakh for each science department; Rs. 2.00 lakh for humanities and social sciences; and Rs.2.50 lakh each for Psychology, Mathematics, Statistics and Geography departments during the eighth plan period and the colleges are expected to enrich their academic resources with such help.

The university is the channel of most of the UGC's aid to colleges. This implies that the university will coordinate, on behalf of the UGC, the activities of colleges sponsored and supported by the UGC in such a way that the objectives of the UGC in making grants to colleges are realised by the latter. Adequate and timely feedback from colleges to the UGC is expected.

UGC and Standards of Higher Education

The fundamental objective of the UGC in coming into interaction with the university is to determine and maintain, in consultation with the latter, standards of higher education. The standards may be determined in respect of duration of degree courses and course content, teaching and evaluation, optimum class size, minimum requirements for admission of students, minimum requirements for affiliation of colleges, minimum qualifications and scales of pay for teachers.

The UGC has succeeded in establishing standards at the undergraduate level and issued regulations in all the above aspects. The Education Commission (1964-66) has recommended an overall pattern of 10 + 2 for school education and thereafter + 3 year for degree education. The UGC persuaded States and universities to switch over to this pattern not only for the sake of uniformity but also for preparing a basis for comparability throughout the country. The UGC has constituted Curriculum Development Centres to prepare model curricula in different subjects to maintain uniform standards of education in the country. The main emphasis in the proposed curriculum is on learning rather than teaching. Universities should discuss the curriculum prepared by CDCs in the concerned Board of Studies and identify the core content. If the core content is uniform the content of courses will be brought under uniform standard in all the universities.

The UGC Revised Guidelines on structuring of courses has helped the universities in redesigning undergraduate courses by introducing the courses of applied nature.

The UGC has issued guidelines regarding minimum number of actual teaching days in an academic year in universities/colleges, minimum programme of examination reform in universities and workload of teachers in universities and colleges. As a statutory measure to implement the above, the UGC has issued regulations of the minimum standards of instruction for the grant of the first degree through formal education in the faculties of Arts, Humanities, Fine Arts, Music, Social Sciences, Commerce and Sciences which came into force on June 1, 1986. It has fixed minimum standards in the areas of (a) admission of students (b) working days (c) examination reforms (d) work load of teachers and minimum qualifications required by teachers and physical facilities such as classrooms, laboratories, library etc.

In tune with the minimum standards of instruction for the grant of the first degree through formal education, the UGC has issued guidelines on "Terms and conditions of affiliation of colleges by a university". These guidelines issued in December 1987 are in regard to physical standards to be provided by the colleges. These physical standards pertain to (a) endowment, (b) land, (c) civic facilities, (d) student hostel, (e) essential services such as water, electricity etc., (f) laboratory and its equipment, (g) library, (h) residence of principal & staff etc.

It also issued regulation that no person shall be appointed to a teaching post in a university if he does not fulfil the requirements as to the qualification for the appropriate subject as provided in the schedule. But the quality of degrees including doctoral degrees are not uniform in the country. As a remedial measure the UGC is conducting National Education Test for the award of JRF and qualifying in the test is an eligibility condition for the recruitment of lecturers. Further, the UGC has set up Academic Staff Colleges in selected universities for the training of teachers both young and old. The young recruits will be trained through orientation programmes and serving teachers will be trained through refresher courses once in five years.

As already mentioned during the later half of eighties, the UGC has done commendable work when compared to previous years. Perhaps this is the result of clear-cut direction it received through the NEP and POA on Higher Education. The UGC has still to work for many more progressive reforms for the determination and maintenance of standards of teaching, examination and research. Further the standards are not static but they are dynamic and standards should be improved from time to time on par with international standards. The UGC performance in certain areas such

as regularisation of growth of universities, examination reform, effective monitoring and evaluation of the schemes; establishment of student teacher ratio etc., is not satisfactory, partly because of built-in defective mechanism in the UGC Act. According to Section 12 of the Act "It shall be general duty of the Commission to take, in consultation with the universities or other bodies concerned, such steps as it may think fit for the promotion and coordination of university education". The UGC as an autonomous organization interacts with university, an autonomous organization, through consultative approach rather than command approach.

The standards of research degrees and qualitative output of research projects have fallen in the recent years. Almost every university has declared what Ph.D. stands for in high sounding manner. But Ph.D. theses are not found to be in consonance with the concept of a research degree. The UGC's heavy emphasis on Ph.Ds. has resulted in mad rush for Ph.D. admissions and quick declaration of results. Thus research has become competitive instead of contemplative. The UGC Committee on Appointment of Examiners to assess the Ph.D. Theses has recommended "...the practice of convention followed by many universities of appointing one or more experts from abroad to evaluate Ph.D. thesis should be discouraged".¹³ Generally it is observed the rate of rejection from foreign examiners is higher than the rate of rejection from the Indian examiners. While appointing Indian examiners, the university should refer only to competent scholar in the field and availability of the person should not be the criteria.

Prof. Rais Ahmed's study on the status of research revealed that the theses based on unsound concepts, use of inappropriate methodology and wrong and unsound analysis were awarded Ph.Ds to the extent of 30 percent. Of late there is tremendous inbreeding in research. The research work of the guide is multiplied by his research scholars for the award of Ph.Ds.

Finally, a university Syndicate/Executive Council/Board of Management is the final authority to make a decision whether to award a degree or not but not the Academic Council, which is supreme academic authority of a university. Most of the universities are not imposing punishments for the malpractices involved in the submission of Ph.D. theses. The fraudulent supervisors/guides are not at all disqualified by universities.

The UGC may issue regulations with regard to maintenance of standards of research degrees but it is the responsibility of the university for the maintenance of high standards. The UGC may inspect after consult-

ation with the university regarding standards of teaching, examination and research. It may recommend to the university the action to be taken as a result of such inspection. In case of non-compliance/failure to implement suggested action by university the UGC may withhold grants proposed to be made out of its funds. The UGC should have power of recognition or derecognition of Ph.D. Degrees in different subjects as awarded by the universities. At least the UGC may prepare the list of recognised/accredited Ph.Ds. on the basis of scrutiny by a panel of experts.

University and the Association of Indian Universities

The Inter-University Board was established in 1925 with a view to promoting university activities, especially by way of sharing information and increasing cooperation in the field of education, culture, sports etc., The legal status it acquired through the registration under the Societies Registration Act in 1967. The present name as "The Association of Indian Universities" (AIU) was acquired in 1973. The uniqueness of this organization is that all universities including single faculty universities such as agriculture, technical etc., open universities, institutions of national importance, deemed universities are members of the organization.

It is a voluntary organization and the main objective is to serve the universities in the fields of (1) Research in higher education especially in the area of Examination Reform and Economics of Education, (2) Training Programmes for the university administrators, (3) Equivalence and information service, (4) Conducting inter-university art, cultural and sports programmes, and (5) Publications in the areas of research findings and information such as courses of study available in various institutions of higher education and Bibliography of Doctoral Dissertations, etc.

University interacts with the AIU in the areas of equivalence and sports and culture more frequently than other areas. The AIU is an accredited body at the national level for the equivalence of degrees and diplomas obtained from India and abroad. The equivalence board of the university generally approves the AIU equivalence of degrees and diplomas. It is integrating the youth of the country through Inter-University Youth Festivals. All universities are participating in the inter-university Arts, Cultural & Sports programmes under the leadership of AIU.

AIU interacts through its standing committee with UGC on specific issues concerning the university system

in the joint meetings. It seems there is no formal mechanism to maintain coordination between the UGC and the ministry and the Association of Indian Universities. It is desirable that the President/Secretary should be an ex-officio member of the University Grants Commission so that there is closer inter-relationship between UGC and AIU.

University and Indian Council of Agricultural Research

Prior to the birth of agricultural universities agricultural colleges formed part of general universities. Kothari Commission believed that "Some orientation to agriculture should form an integral part of general education not only at the school stage but also at the university stage and in all teacher education".¹⁴ Further it stressed a close collaboration between the agricultural universities and the other universities for the development of agricultural education not only in the agricultural universities but outside of them also. The ICAR was set up in July 1929 as a registered society. It was reorganised in 1966 and again in 1975. It is the apex body for formulating plans and coordinating agricultural, animal husbandry and fisheries education and research and their application. In the field of agricultural education it performs a role similar to that of the UGC. The Ministry of Agriculture has also set up Agro-Economic Research Centres in selected universities to promote research.

All the central agricultural research institutes are now under the umbrella of ICAR. The agricultural universities should interact closely with central research organizations. Again agricultural universities should interact closely with Multi-faculty universities in the areas of irrigation engineering, ground water hydrology, meteorology, basic sciences, etc. However there appears to be no close interaction between agricultural universities and general universities. The Education Commission felt that "close collaboration in education for agriculture between the agricultural universities, the IITs and the other universities would be greatly facilitated if the same organization namely ICAR is charged with the responsibility of overseeing the development of agricultural education, not only in the agricultural universities but outside them also."¹⁵

The Kothari Commission has suggested that the ICAR should constitute a special standing committee which can meet frequently and deal expeditiously with all the developmental work needed in higher education and research in agriculture.

University and the Medical Council of India

The original "The Indian Medical Council Act" 1933 was repealed and the present Act was enacted in 1956 for the purpose of extending into the whole of India and the formation of a Committee of Postgraduate Medical Education for the purpose of assisting the Medical Council of India to prescribe standards of postgraduate medical education for the guidance of universities and to advise universities in the matter of securing uniform standards for postgraduate medical education throughout India. The Act provides for the reconstitution of the Medical Council of India and the maintenance of a Medical Register for India and for matters connected therewith. The major functions of the Medical Council are to (1) Coordinate and determine the standards of medical education at all levels; (2) Regulate the practice of medicine in India and maintain the Indian Medical Register; (3) Advise the Centre in matters relating to the requirements of manpower in the field of medicine; and (4) Undertake periodical review of undergraduate and postgraduate medical education. It is mandatory to take permission of the Council for the opening of new medical colleges, new courses or increase in the number of seats in existing medical colleges.

The university interacts with the Council for the recognition of its degrees in medical education. The Council has power to prescribe the minimum standards of medical education required for granting recognised medical qualification by universities or medical institutions in India. Further it has the power to make regulations under section 33 of Indian Medical Council Act 1956 with regard to courses and period of study and of practical learning to be undertaken, the subjects of examination and the standards of proficiency obtained therein. Further, it makes regulations in respect of standards of staff, equipment, accommodation, training and other facilities for medical education. If a university/medical institution/college affiliated to that university does not conform to the standards, the Council will report the matter to the Central Government. The Central Government refers the matter to the State and the State in turn refers to the concerned university/institution. If there is no satisfactory explanation the Central Government may withdraw recognition through the procedures as envisaged in the Act as well as rules and regulations made under the Act.

But the Central Government barring one or two cases has not withdrawn recognition of a medical degree of any university in the country. The Medical Council should be freed from the interference of the Government. This is possible to some extent by constituting

Medical Education Commission instead of Indian Medical Council. Kothari Commission has recommended that UGC type organizations should be set up for dealing with technical, agricultural and medical education. "They need not necessarily be set up by law and our purpose will be served if they are established as autonomous organizations. They should be composed of teachers and scientists of eminence in their fields and should be small and compact bodies so that they can meet frequently and work expeditiously".¹⁶ The Union Health Minister recently announced that a UGC type of Commission will be constituted for Medical Sciences.

Of late there is a trend to establish separate medical universities in the country. The Andhra Pradesh Government has set up A.P. University of Health Sciences at Vijayawada. Similarly, Tamilnadu has established M.G.R. Medical University at Madras. It is to be seen to what extent a separate university may help in the improvement of quality of standards in teaching, research and examinations of medical degrees.

University and All India Council for Technical Education

The All India Council for Technical Education was set up in 1945 with the objectives of surveying the needs of higher technical education, and advising in what areas technical institutions should be established, for what branches of technology each should provide and upto what standards they should operate.

This non-statutory body was converted into a statutory one through an enactment in 1987 as "All India Council for Technical Education". The preamble of the Act says "with a view to the proper planning and coordinated development of the technical education system throughout the country, the promotion of qualitative improvement of such education in relation to planned quantitative growth and the regulation and proper maintenance of norms and standards in the technical education system and for matters connected therewith".¹⁷

As per the Act "Technical education means programmes of education, research and training in engineering, technology, architecture, town planning, management, pharmacy and applied arts and crafts."¹⁸ The Central Government, in consultation with the AICTE, may declare such other programmes as technical education. Management education is now technical education under the Act. Now some of the universities are insisting on the promoters of M.B.A. courses to obtain prior permission of the AICTE as a pre-condition for the grant of affiliation. Some of the borderline

courses such as Biotechnology, Master of Computer Applications, Diplomas in Computer Applications etc., are a blend of science, technology and engineering. These courses may not be restricted to operate in the engineering faculty alone. The borderline courses may be offered anywhere including social sciences. The AICTE may insist on standards but not restrict its operation in other faculties such as sciences and social sciences.

The AICTE is an autonomous body but in operation it is one of the departments of the Ministry of HRD. The first Chairman, Vice-Chairman and Member Secretary of the Council are the Minister, Minister of State and Educational Advisor (Technical) of HRD Ministry respectively.

One of the functions of the Council is to allocate and disburse out of the funds of the Council such grant on such terms and conditions as it may think fit to technical institutions and universities imparting technical education in coordination with the UGC. In this connection it examines the standards of teaching, research and examinations of various technical courses. The university interacts with AICTE through the UGC for the purpose of funds as well as for the maintenance of norms and standards in the technical education system. It lays down norms and standards for courses, curricula, physical and instructional facilities, staff pattern, staff qualifications, quality instruction, assessment and examinations. The Accreditation Board of AICTE which is going to be constituted periodically conducts evaluation of technical institutions or programmes as per norms and standards and recommends to the Council or to the UGC or to other bodies regarding recognition or derecognition of an institution or programme.

The State is the competent authority to accord permission/recognition for the starting of new institutions or offering new courses in the existing institutions/colleges. The competent authority for granting affiliation to new institutions/colleges as well as for the new courses in the existing institutions/colleges is the concerned university. The AICTE grants approval for starting new technical institutions and for introduction of new courses or programmes in consultation with the agencies concerned. The State Directorate/Commissioner of Technical Education forwards the applications of new institutions to the AICTE. If the applicant is influential, the Chairman, who is the Minister of HRD may give provisional approval for the starting of the college. In view of this, the positions of Chairman and Vice-Chairman should be occupied by eminent persons of high stature other than ministers as in the case of UGC.

The Kothari Commission noted that the AICTE "which is an unwieldy body with Union Minister as Chairman, meets hardly once in a year."¹⁹ This suggestion was not incorporated in the new Act. Further, it is suggested that a UGC type of body be set up for the development of technical education at the University level and maintenance of standards therein.

University and the Bar Council of India

The Bar Council of India is a body corporate having perpetual succession and a common seal. It is an autonomous body incorporated under Section 4 of the Advocates Act, 1961. The functions of the Bar Council of India, among other things, are:

(1) to promote legal education and lay down standard of such education in consultation with the universities in India imparting such education and the State Bar Councils; and

(2) to recognize universities whose degree in law shall be a qualification for enrolment as an advocate and for that purpose to visit and inspect Universities.

The university interacts with the Bar Council of India in two areas: (1) standards of legal education and recognition of degrees in law for admission as advocates, and (2) approval of affiliation of a new college. The Bar Council of India has the authority to issue directives from time to time for maintenance of the standards of legal education. The college/university is expected to follow them compulsorily. The Bar Council of India lays down the academic and physical standards and recommends them to the universities imparting professional education in law. Further, the Council has power to recognise or derecognise degrees in law awarded by universities. It notifies in the Gazette of India the names of the universities whose degrees in law are recognized. Similarly information about non-recognition or derecognition of the degree in law of a university shall also be sent to all the universities in India imparting legal education and to all State Bar Councils.

The university is the competent authority to grant affiliation but the Council kept the power of approval of affiliation given by the university. If the Council is of the opinion that affiliation of a college be disapproved it shall give a notice of the proposed action to the Principal of the college and Registrar of the university.

University and Funding Organizations

The research activities in the universities are largely financed by grants and contracts administered through several departments and agencies of the Union Government. The university interacts with several departments

and agencies of the Union Government. The university's ability (strength) of receiving grants from various funding agencies depends upon its qualitative standing and research capabilities of its faculty. Research grants helped the universities in the purchase of books & journals and equipment essential to the research for Ph.Ds. The schemes sponsored by various departments of the Union Government may foster certain kinds of innovations and make it easier to convert research units into centres of excellence in particular fields. Research schemes/projects are considered to be status symbols and it encourages a commitment to high quality scientific work. At the same time, certain undesirable practices are involved in undertaking research schemes/projects. They are (1) Time and attention are paid on schemes/projects at the cost of basic teaching function, (2) The project directors and other research staff are slowly detached from the concerned department, and (3) Taking the opportunity of super specialisation research, the academicians struggle for the establishment of separate departments of study.

This kind of fragmentation of knowledge and the development of specialised methodologies without integration with the core may result in academic anarchy. H.J. Perkin in his book *New Universities in the United Kingdom* rightly said : "The division of mental labour, like that of manual, was never more than one half of the process of social production, the other half, forgotten by Adam Smith is the reintegration of divided parts into coherent whole, a product or service. The future belongs not to the specialists who will be the necessary instruments but to the integrators, who will be the necessary entrepreneurs both of production and services and of the production of new knowledge and scientific advance. This is the real justification for the new maps of learning in the new Universities. It is also their market opportunity".²⁰

Integration of research output is essential for the development of a system. At the first instance, coordination is essential for integration of research output. There appears to be no coordination between universities and research organisations outside the university system.

"A large number of research institutions have been set up outside the University system. The process of higher education has to develop in close contact with first class research in frontier areas of science, technology, humanities and social sciences. If higher education has to become relevant and solve the most difficult problems, universities must come centre-stage. They should grapple with significant scientific problems of industry and national agencies".²¹

University interacts with various funding organizations of the Central Government for its research activities out of which the most significant organization is the Council of Scientific and Industrial Research. It was constituted in 1942 as an autonomous organization and it forms a part of the Ministry of Science and Technology. The CSIR is a giant organisation consisting of 42 National Laboratories, which also provides funds for extramural research i.e. outside institutional framework of CSIR laboratories.

University and the Council of Scientific and Industrial Research

CSIR encourages inter-organizational collaboration for those research projects which supplement the research activities of CSIR laboratories. It establishes units in universities/institutes of higher learning where good expertise is available on problems related to thrust areas of CSIR. It encourages bright youngmen and women for research through Junior/Senior Research Fellowships and Research Associateships. It is conducting national examination/test in collaboration with another important organization viz., UGC.

The interaction between UGC and CSIR is highly significant because the former encourages research in the universities and later encourages research in the national laboratories. There is thus flow of information among the organizations working for research pursuits. Recently there has been a collaborative agreement between the UGC & CSIR with regard to flow of scientific personnel. The scientists of CSIR will have access and participation in the inter-university centres. The university system will provide academic recognition to the CSIR scientists through Visiting, Adjunct and Honorary Professorships etc. The university's academic scientists will be allowed to utilize research facilities and other infrastructural facilities of the CSIR for short periods. The CSIR also enters into agreements with individual universities for mutual cooperation and interaction.

Inter-organizational relations involve a variety of complex processes, one of which is an exchange of personnel. Interaction between the academic scientists, and applied scientists, will be of immense mutual benefit. There may be friction and this may be avoided through mutual respect and cooperation. The New Education Policy stressed the need of coordinating research in the universities with that of non-university organisations. The inter-organizational collaboration between CSIR and UGC will be beneficial for both the organizations

The Department of Science and Technology offers

time bound research projects usually of three years duration in areas which normally do not come under the direct purview of agencies like ICAR, ICMR, UGC, CSIR etc., and departments such as Atomic Energy, Electronics, Environment, Ocean Development and Space. It identifies the areas of research as Thrust Areas, and extends its support only in those areas. The major objectives of DST are (1) to promote research in newly emerging and frontline areas of Science and Engineering including multi-disciplinary fields; (2) to selectively promote general research capability in relevant areas of Science and Engineering taking into account existing research capabilities of the host institutions; and (3) to encourage young scientists to take up challenging research and development activities. The DST also provides funds for the intensification of research in high priority areas. Generally universities scrutinize the proposals before submitting to the DST and other funding agencies. Certain funding agencies receive proposals periodically i.e. once a year or twice/thrice during the year and some agencies accept throughout the year. The universities take their own time in clearing the proposals submitted by the scientists of the university. The delay leads scientists to question the university authorities as to why should they scrutinize the proposals since the funding agencies assess the viability of projects/schemes. The university has to spare the time of the scientist, laboratory, other infrastructural facilities and examine the proposal whether it is in tune with the research mission of the university. Even though the individual scientist submits the proposal to funding agency, ultimately the university has the responsibility and accountability.

Certain departments of Union Government not only give grants for research schemes/projects but also sponsor teaching and training programmes. The DRDO has sponsored M.Sc. (Software) in selected universities for a period of five years. The Department of Biotechnology in collaboration with UGC has sponsored M.Sc./M.Tech courses in Biotechnology in identified universities. The DST is providing financial assistance for equipment, books and journals, contingencies, academic staff salaries and studentships. The UGC pays the salaries of technical and administrative staff and a part of building cost. The departments of Atomic energy, Space, Electronics, Environment, Ocean Development etc., support research work in their special areas undertaken by a university.

Other Organisations

Indian Council of Social Science Research was established in 1969 as an autonomous organization to promote and coordinate social science research in the

country. The Council reviews the progress of social sciences and sponsors research programmes and gives grants to individuals and institutions for research in the field of social sciences. Similarly Indian Council of Historical Research (ICHR) which was set up in 1972, encourages and sponsors research programmes in different fields of history. Another organization known as Indian Council of Philosophical Research sponsors or assists projects or programmes in philosophy and allied disciplines.

University and Knowledge Users

The university's output consists of its graduates and the information generated by its research activity. Its output becomes a part of the inputs to knowledge users. Knowledge users are those organizations and individuals in the economy who employ and utilise the university's output, and are, therefore, considered to be forming a partial system of organizations within the system of higher education. (The university itself is one of the users.) They are varied and sometimes unconnected with each other; they are engaged in agricultural, mining, manufacturing, service and other enterprises. They do not have a direct common forum for the purpose of coming into interaction with the university. Positive and continuous interaction between these two partial systems is of great significance.

The university occupies the most significant position in the 'knowledge industry'. Knowledge industry refers to production and distribution of ideas and information. Traditional economic theory has regarded knowledge industry as part of the tertiary sector of the economy, but Drucker asserts that it is the primary activity of any economy and that all other economic activities depend basically on the growth of the knowledge industry.²² The new manufacturing industries like the information industry, the oceans and the materials are based on the knowledge of the 20th century. The green revolution is the outcome of advances made in the knowledge of agricultural and related sciences.

The university produces graduates in many branches of learning; most such graduates seek employment in the society. What does the degree tell the users? It provides to the potential employer two things – educational and informational. The educational provision implies that additional human capital is provided in the form of increased knowledge and skill which will lead to higher productivity; the informational provision implies that the university education consists of a series of trials which provide information about the student's ability to perform some tasks. The degree may be compared to passport given to the graduate to the world of employ-

ment, but the visa for entry will be given only by the users. For this, there should be interaction between the university and the users in such a way that the users inform the university as to the skills they expect from the graduate and the university attunes its courses and curricula to suit their requirements.

At present, there does not appear to be such interaction. The users have to retrain the graduates in order to make them useful within their organization. Besides, this absence of interaction, among other factors, contributes to the problem of unemployment of graduates. "They are not employable because what they learn in the educational institutions is apparently not what our society needs", and "society itself does not know that it needs...."²³.

The graduate may be oriented academically and intellectually but not to knowledge in the sense in which Drucker uses the word. "For the intellectual, knowledge is what is in a book. But as long as it is in the book, it is only 'information', if not mere 'data'. Only when a man applies the information to do something does it become knowledge. Knowledge, like electricity or money is a form of energy that exists only when doing work".²⁴ Moreover, graduates with single subject specializations must learn to relate their specialized training to the universe of knowledge and to relate it to its application in concert with other specialists to end results.

In order to enable the graduates to become knowledge-oriented, there should be effective interaction between the university and the users. The needs of the users are to be considered by the university in designing the courses and curricula. Recently, users are being associated with the boards of studies of the university. The Gajendragadkar Committee has suggested that provision should be made for representation of learned professions, industry, commerce and trade unions, banking and agriculture, by nomination by the visitor on the Senate of the university to the extent of 25% of the total members.

Another way of bringing the university and the users together for mutual advantage is to have a two-way exchange of personnel working in the university and the user organizations. Managers, scientists and engineers employed by the users may be taken as part-time teachers in the university; such part-time academics with their industrial experience and understanding of the outlook and problems of the users, can speak the language of their industrial partners in the university's teaching and research efforts and thus achieve a rare rapprochement of great benefit to both sides and to their research results. Similarly university teachers may

be given opportunities to understand the user organizations. This will help to enrich the university's teaching and research efforts and at the same time help to make its courses and teaching appropriate to the requirements of the users. The Indian Institutes of Management are examples of collaborative interaction between producers and users of graduates.

In the case of university's research output, there does not appear to be any appreciable interaction between the university's research effort and users' utilisation of the same. Even the public sector industrial firms do not maintain close contacts with university's research effort. There are "hardly any points of contact between the university department and industry, and what is even worse, between university departments and industrial laboratories."²⁵ There is no significant collaboration between the research and development wings of government ministries and of industrial firms on the one hand and the university on the other. The comment of Philip Altbach that the "University of Bombay has not been linked in any major way to specific technological problems of industry or commerce in the city of Bombay or to agricultural problems in the state of Maharashtra"²⁶ appears to be applicable to most universities in India.

In the case of social sciences, the research output is not being utilised by bodies, public or private, except in the case of sponsored research. Generally the State Governments use their officials to enquire into socio-economic problems of their regions; this task can also be entrusted to researchers working in the university. If the users regard that such output is irrelevant to solve their problems, it only emphasizes the need for close links between the producers of research information and its users.

If it is recognised that the university's output is meant not only for the sake of education, but also to be employed by users, it is only appropriate that the university's educational effort should begin with the users and end with users.

Conclusions

Several organisations are working in the higher education system and all of them are interrelated to interact with each other in the furtherance of higher education. Currently there is no single authority at the national level to coordinate all the segments of higher education in the country. University as a focal centre in the higher education system interacts with several organisations for the purpose of securing inputs. But university's freedom to convert inputs into output is limited since, the providers of inputs are demanding to

convert inputs into output as per specifications/regulations laid down by them. In this connection, mutual respect and cooperation is essential rather than fighting for safeguarding of autonomy of each organization. When university produces output as per regulations framed by the regulatory organizations, it should be accredited by the concerned body. Every regulatory organisation should establish "Accreditation Council" as an autonomous organisation free from political influence. The recipient of the university output may or may not be the same organisation that provides inputs to the university. The objectives and needs of the knowledge users should be given due recognition by the university and the other organizations in the higher education system.

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REGISTRAR

Science Education Through Mass Media

Anjni Koul*

Introduction

Emerson has said "Science Surpasses the old miracles of mythology". In the modern world the approach of rational inquiry and the mode of thought which underlie science and technology is spreading rapidly. The world is changing in profound ways and the spirit of rational inquiry is, however, driven by a belief in its efficacy and by restless curiosity.

The worldwide pursuit and spread of science and technology are commonly recognised and these arouse the expectation of a better way of life, promise material satisfaction and hold forth greater responsibilities for the development of human potentialities. They give rise to genuine optimism and excitement to human mind for the creation of new things. Science education is spread all the world over. The developing countries are rich in resources but due to lack of technology, they are unable to use their resources for the economic welfare of their own people.

Science education should capitalise upon societal issues and problems as the focus for its processes and content is essential. The individual can be helped to see that cent percent controversies regarding science are relevant and open ended. Paul De Hart Hurd said that the major educational challenges of the next decade as a development of learning environments would help prepare people to cope with a rapidly changing society. Education Commission (1964-66) observes "Science is liberating and enriching of the mind and enlarging of the human spirit. Its fundamental characteristic has turned out to be the possibility of unlimited growth. Every advance in science deepens our understanding about Nature but it also heightens the sense of ignorance. Nature is inexhaustibly knowable. Nothing comparable to the scientific revolution in its impact of man's development and outlook has happened since the neolithic times.

Science education besides satisfying the intellectual curiosity of man and providing materials and media for intellectual exercise has disciplinary effect on the mind of man. Since science covers the widest range of knowledge, the learners wonder at the intricacies and

mysteries of the universe. These tend to create a broader outlook of the learner. Science is universal in character. It has no barrier of any kind. It is international in outlook. The scientific revolution began in Europe where modern science was learnt but its home is now the whole world and the fruits of scientific discoveries are enjoyed by the people all over the world.

The achievements and the benefits of science touch all sectors and all levels of the modern society. The modern man has applied science and technology for the well-being of mankind by inventing machines and by harnessing the resources of nature. The gifts of science have been profitably used for making life comfortable and raising the standard of living. The recent advances in the field of science and technology and the wide application of the achievements of science in industry, agriculture, medicine, transport and communication has given a new shape to the world and the existing gaps have been bridged. Therefore, the developing and underdeveloped countries have been laying emphasis on science education and now a large number of scientific institutions are established to produce scientists to fulfil the demand for trained manpower which can be helpful in increasing productivity in every sector. Science programmes have their criteria as :

1. Social relevance and controversial overtones,
2. Relevance to the students of the designated level,
3. Pertinence to several disciplines,
4. Potential for substantial direct students experience,
5. Perception of the cultural conditions within which science thrives,
6. Viewing scientific enterprise within broad perspectives of culture, society and history,
7. Appreciation of the universality of scientific endeavours, and
8. Social aspects of science.

Science Education in Indian Context

India is wedded to democracy and it is the largest democracy in the world. Its population is over 85 crores and the resources are depleting gradually. But it has been successful in achieving 52.5% literacy in spite of population explosion. Jawaharlal Nehru, the first Prime Minister of India, in his inaugural speech at the Science

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Congress in 1961 said "the Central Government of India concerns itself with the coordination of educational facilities and determination of standards in respect of higher education and research and to scientific and technical education. We have established research laboratories for exploring innovations in the area of science for the benefit of masses. We would take science to the village in order to increase productivity in all the sectors". New education policy (1986) visualises the importance of science for the people and recommends that world is moving very fast, and therefore, science is to be made the basic model for new development. However, mass media can popularise science among masses and can also help inculcate scientific temper among our own people who are still illiterate.

Role of Mass Media in Science Education

Marshall McLuhan says "the medium is the message". The statement has certainly highlighted the importance of media. The present day mechanical devices have, indeed, brought about a virtual revolution in the life of man and are being used in diverse fields of human activity. Now radio and television are being used for the promotion of various fields including the science programmes.

Television

Television is a strong visual aid which can prove to be most effective instrument for popularising of science among the masses. The students can learn science while sitting at home through TV which is the effective medium for developing scientific climate in the country. Science units can be prepared on various components of science and video tapes can be relayed on the TV and the learners can watch the science lesson easily. They can prepare notes etc. for using them after the programme is over. Even the experiments in Physics, Chemistry, Zoology and Botany can be displayed on the TV for the distance as well as the formal learners. The students can prepare kits in which they can record the important steps of the experiments in their kits in order to study all the points even in the absence of the programmes. India has a broad network of science education and it requires its display on some electronic gadgets. The lessons on science can be prepared by the educational institutions and these can be relayed on the TV.

Radio

It is another important medium for the promotion of science education in the country. A team of experts can be commissioned to prepare the lessons on science for

the students. These should be broadcast on radio. The radio broadcasts cover 99% population in India. So it is easy to impart instructions in science to develop scientific temper among the masses. University of Wales and Open University at Milton Keynes have designed some courses in such a manner that all the people can get benefit out of the programmes which have been initiated by these universities. Indira Gandhi National Open University, Andhra Pradesh Open University and Kota Open University are utilizing radio time for their broadcasts.

Audio Cassettes

The audio cassettes have larger advantage for the students to study science. Massay University of New Zealand and Distance Education Institute of Melbourne, Australia have prepared audio cassettes in science for different classes. The cassettes are relayed in the classrooms and the lesson in Physics, Chemistry, Biology, Geology and other branches of science are recorded by the experts. These tapes are made available to the learners. They control the use and students make notes from the tapes. These are used to :

- i) provide complete information,
- ii) clarify certain complex points of science,
- iii) give feedback and students conduct experiments themselves, and
- iv) find the conclusion

Now the distance education institutions are imparting science instructions through different types of media. But audio-cassettes are more essential components of modern teaching technology.

Videotex

The interactive role of telidon and videotex has been appraised by different educators. They have emphasised the use of telidon & videotex for teaching science to the distance learners and they have recommended the development of common programmes in science education for both formal and distance learners. This technology has changed the role of the teacher as well as the learners. The learners can have science instructions on telidon and videotex.

In the western countries the satellite system is very strong and the programmes on scientific inventions, discoveries and exploration are relayed through satellite and these programmes reach every corner of the country and even to every individual. India has also made successful strides in stationing satellite in space and our instructional technology is not far behind the advanced countries of the world. It has achieved success in taking science to the masses.

Parmar Varsity Convocation

Shri Balram Jakhar, Union Agriculture Minister said that States had been asked to link horticulture with employment guarantee schemes and the Jawahar Rozgar Yojana and complimented the Himachal Pradesh Government for launching the employment linked "Van Lagao, Rozi Kamao Scheme" for preserving, planting forests and providing employment to 75,000 persons. He was speaking at the second convocation of Dr. Y.S. Parmar University of Horticulture and Forestry held recently at Nauni. Mr Jakhar said the plan outlay for horticulture had been increased from Rs 33 crore in the Seventh Plan to Rs 250 crore in the eighth plan to give a boost to horticultural production in the country. He said the total area under the fruit and vegetable production was just 6.73 percent of the total cropping area and there was vast scope for its expansion.

He said a production target of 34 million tonne of fruit and 75 million tonne of vegetable had been fixed against the present target of 24.8 and 48.7 million tonne respectively. It was besides the target of .325 m. tonne of cashew, 2m. tonne of spices and 10.8m. tonne of coconut, he added.

Mr Jakhar embarked upon an ambitious plan to set up six million honeybee colonies to meet the target to produce 60,000 tonne of honey by end of the century. About 4.5 lakh colonies would be added every year giving employment to 45,000 persons. He said one person could handle 100 colonies and earn

upto Rs 20,000 annually to make the scheme more rewarding and added that changes in land use pattern were necessary so that the flowers were available for pollination for greater part of the year.

Mr Jakhar called for diversion of agriculture through technologically feasible and economically viable agricultural enterprise to attain more balanced economic development, so vital for our future. He expressed concern that the agriculture production was tending to level off and the cost of inputs was becoming prohibitive resulting in migration of rural agricultural population from villages to the urban areas in search of better quality life.

Mr Jakhar stressed that time had come to develop horticulture estates in selected areas of the country for fruit cultivation and added that Himachal, Jammu and Kashmir, Uttar Pradesh, Karnataka, Madhya Pradesh and Tamil Nadu were suitable for this purpose. He said Uttar Pradesh had taken the lead in this regard by identifying mango and guava estates. He called upon the fruit cultivators to go in for lower volume high value crops as apple had reached a saturation stage. He urged the Dr. Parmar Horticulture University to prepare a blueprint for identifying such crops and suitable areas.

He said that another area which could bring economic revolution and boost exports was mushroom cultivation. He said the total production of mushroom was only 3,500 tonne which could be raised to

a level to enable the country to earn Rs 400 crore through exports in five years and Rs 1,000 crore by 2000 A.D. He said the total world trade in mushrooms was 3.5 million tonne valuing \$7 million which would cross \$15 million in next 10 years. India could become a leading mushroom cultivating country if it could grab only 10 per cent of the total world trade, he added.

Engineering College at Kottayam

The Kerala Government have accorded sanction for starting a new Engineering College in Kottayam during this academic year in memory of Late Prime Minister Rajeev Gandhi. The college will function as a higher educational Centre of National importance, offering most modern courses in Engineering Technology with research facilities.

The college will offer courses in (1) Civil Engineering, (2) Mechanical Engineering, (3) Electrical and Electronics Engineering, and (4) Electronics and Communication Engineering with an intake capacity of forty students for each course. The college will be affiliated to the Mathma Gandhi University, Kottayam.

Seminar on Music Research

Indian Musicological Society (Bombay & Baroda), in collaboration with the Department of Music, University of Bombay and other cultural organisations, proposes to organise a National Seminar on "Music Research — Perspectives and Prospects", on December 20-

22, 1991, at Bombay.

The objectives of the seminar are : to provide a forum to musicians and musicologists to express their thinking on research in music in relation to history, tradition, preservation, contemporary practice, social relevance and needs, music in education and the education in music, application of music, understanding of music with the help of many sciences and also to focus attention on unexplored avenues of resource materials, as assistance to those aspiring for doctoral/post doctoral studies and all those who are ever in search for deeper understanding of music.

Further details can be had from Prof. R.C. Mehta, Director, Music Seminar, Indian Musicological Society, Jambu Bet, Dandia Bazar, Baroda - 390 001.

IFLA Conference 1992

The 58th General Conference of the International Federation of Library Associations (IFLA) will be held in New Delhi from 30th August to 5 September 1992. The Indian Library Association will play host to the General Conference. About 3000 delegates including 2000 foreign delegates are expected to attend the conference. The delegates will include library professionals, information scientists, academicians, media persons, publishers, information technology and software experts, online data, vendor and marketing vendors. The theme of the Conference is "Library and Information Policy Perspectives".

It is proposed to hold 13 workshops and 4 satellite meetings additionally on the themes including the art, parliament and academic and national libraries, libraries for the blind, children's literature,

education and training, besides bibliographical central.

Besides, the official Pre-Conference on the theme of "The image, status and reputation of the library and information profession" will be organised for the librarians from the developing countries.

1992 being the centenary year of Dr. S.R. Ranganathan, the father of Indian Librarianship, several programmes are being organised along with the IFLA Conference. It is proposed to organise an exhibition of "100 years of Indian Librarianship". Ranganathan is also the main theme of the plenary session of IFLA General Conference.

An International exhibition on Books and library equipment and Information technology will also be organised on this occasion which will be the centre of activity for marketing and promotion, exchange of areas and experiences with the top leaders of the knowledge industry.

Further details can be had from Mrs. Aruna Karanjai, Chairperson, Public Relations Sub-Committee-IFLA 1992, c/o INSDOC, 14 Satsang Vihar Marg, New Delhi - 110067.

Literary Awards 1991

Shri K. L. Zakir, Secretary, Haryana Urdu Akademi and Hony. Director, Shramik Vidyapeeth, Chandigarh and Dr. (Mrs) Phulrenu Guha, former Union Minister of State for Social Welfare have been awarded the Nehru and Tagore Literacy Awards respectively for the year 1991.

The Awards have been instituted by the Indian Adult Education Association to inspire literacy workers and to help the cause of eradication of illiteracy from the country.

Shri Zakir has been selected for his outstanding contribution to the promotion and development of adult education for over three decades. Recipient of the 24th Nehru Literacy Award, Shri Zakir has been instrumental in inspiring college students to undertake adult education work for the all round development of urban and rural areas.

He has written extensively on adult education. His booklets for neo-literates in Hindi, Urdu and Punjabi have won national awards. He has prepared teaching/learning materials for various categories of adults, including workers and slum dwellers.

Dr. (Mrs) Guha, has won the Tagore Literacy Award for her pioneering work in promoting literacy education among women. She had been involved in adult/social education since community development project days. She had organised adult night schools in slum areas to improve their quality of life.

Course Material on Payment

The course material of Indira Gandhi National Open University (IGNOU) is now available to general public against nominal payment. This decision has been taken in view of heavy demand from public who are not interested to pursue educational programme but wish to upgrade their knowledge.

Course Material of any programme upto 50 pages shall be of Rs. 15.00, upto 75 pages, Rs. 20.00 and above 75 pages Rs. 25/-.

IGNOU also offers a discount (upto 40%) on the above prices in case of supply of educational material to universities and other educational institutions.

Special Officer for Kannada Varsity

The Karnataka State Government is reported to have appointed Dr. Chandra Shekhara Kambara, well-known Kannada playwright, as Special Officer to do the ground work for the establishment of Kannada Varsity at Hampi.

The Education Minister, Mr. Veerappa Moily said the Government had earmarked Rs. one crore for the university and the appointment of Vice-Chancellor and other functionaries would be made after the preparatory works were completed.

Institute of Coastal Zone Management

The establishment of a SAARC institute of coastal zone management is reported to have been suggested by the coordinators of South Asian Association of Regional Cooperation (SAARC) member-countries while finalising the regional study on the causes and consequences of natural disasters and the protection and preservation of environment.

The coordinators have reportedly reviewed the coastal zone management programmes and suggested that the member-countries might strengthen and upgrade their existing institutions dealing with research on coastal zone matters and establish networking arrangements on information, expertise in areas of common interest.

Cooperation might be promoted among the riparian member-states for improving water management and optimal use of water resources for various purposes, including navigation.

Centre for Third World Studies

The Vice-Chancellor of Mahatma Jyoti Basu University, Rohtak, Haryana, O.P. Chaudhary (Retd), has approved a proposal to start post-graduate studies from next year.

The university, it is believed, will send a proposal to the UGC for clearance of "the Centre for the Third World Studies" with special reference to the prospects and problems of regional cooperation in South Asia (SAARC). The centre was established a long time ago but it awaits the UGC clearance. There will be a separate building to house the centre. The state government will grant Rs 2 crore for the proposed centre. Two professors will be appointed for the new centre which is scheduled to become func-

tional from next year.

The university has also started a master's degree course in computer science from the current session.

Nehru Award for Dr. Mahale

Dr. Kashinath Jagannath Mahale, scholar, educationist and former Vice-Chancellor of Manipal University, is the recipient of the first ever Pandit Jawaharlal Nehru award instituted by Pandit Jawaharlal Nehru Trust for excellence and meritorious contribution in the field of education.

The award, consisting of a citation and Rs. 10,000 would be presented to Dr. Mahale on November 14, 1991.

News from Agricultural Universities

Breakthrough in Insect Pest Management

The Entomologists of the University of Agricultural Sciences, Dharwad have developed a novel, cheap and most effective method of killing cent percent moths of Armyworm (*Mythimna separata*). The team headed by Dr. I.G. Hiremath, Sorghum Entomologist, has achieved this unique feature which appears to be the first of its kind in the world.

The method is simple. Take two kg jaggery, 125 ml monocrotophos 36 EC and dissolve them individually in one litre of water and mix with 25 kg of either rice or wheat bran. Add 3-4 litres of water and mix thoroughly so as to get crumb structure. Store this mixture for two days in baskets, buckets, gunny bags or open drums. On third day, spread this bait on sorghum crop in which

the pest has appeared or is anticipated. All the moths present in the field will be attracted to this aromatic bait and suck the juice from fermenting mixture and die within 6-12 hours.

In case of Armyworm, killing one moth is equivalent to killing 500-600 caterpillars as per the fecundity. This new method is both preventive and curative. It is cheap and costs Rs. 60 per acre. One labour can cover 4-5 acres per day. Less requirements of water (5-6 litres/acre). No necessity of sprayers or dusters. The disturbance or destruction to natural enemies and environmental protection are minimum.

Like Armyworm of sorghum, *Heliothis*, a dreaded enemy of cot-

ttion, tobacco and groundnut; *Achoea janata*, a semi-looper of castor; *Agrotis*; a cutworm and many other lepidopterous pest species of agricultural, horticultural and forest plants could be controlled by this novel method.

New Varieties from Konkan Krishi Vidyapeeth

The Konkan Krishi Vidyapeeth, Dapoli has evolved new varieties of chilli, groundnut and dolichos bean known as Konkan Kirti, Konkan Gaurav and Konkan Bhushan, respectively. The State Seeds Sub-Committee of Maharashtra recently released these new varieties for cultivation.

The 'Konkan Kirti' yields about 10 tonnes of green fruits per hectare in 120 to 130 days. It possesses export qualities such as dark green colour and lustrous fruits having good keeping quality with mild pungency. The variety is tolerant to leaf curl and dieback.

'Konkan Gaurav' is semi-spreading and matures in 105 to 110 days in kharif and 120 to 130 days in rabi season. The kernels are medium in size, oval shape, whitish red and shelling percentage is 75 to 77. The seed has a dormancy of about 30 days. It yields about 18 to 20 quintals of dry pods per hectare and performs very well during both Kharif as well as rabi seasons in the Konkan region. Since the seed has dormancy, the yield is not affected even though the monsoon rains are prolonged.

'Konkan Bhushan' of dolichos bean has been developed from the cross between hebbal-3 x local wal. It is determinate plant type and has excellent vegetable quality. The variety is released specially for vegetable purpose and yields about 12 to 15 tonne of green pods per hectare.

Chancellor Visits MPKV

Shri C. Subramaniam, Governor of Maharashtra, recently visited the Mahatma Phule Krishi Vidyapeeth, Rahuri. While addressing the staff and students he said, "It is essential to study the nutrient status of soil, weather, vegetation, environment and social aspects to increase the productivity of the soils".

Shri Subramaniam, who is also the Chancellor of the University visited the various research projects of the university including the Drip Irrigation cafeteria of the water Management Project and Cropping System. He showed keen interest in the researches being conducted in the field of crossbred cows, sheep for mutton, crossbred goat for mohair and rabbit for mutton.

Shri Subramaniam appealed to the scientists that present crop production was not sufficient for the growing population, land was limited, and the proper use of this important factor was very essential. The improved technology should be followed to get more crop yields to face growing needs. It was therefore essential, he said, to study the land & its related aspects. With the use of remote sensing, modern agricultural technology, biotechnology, wide use of computers, agricultural production could be increased manifold and it was essential that agriculture scientists & other scientists, come together to work for agricultural development.

Dr. S.K. Dorge, Vice-Chancellor in his welcome address briefly described the activities of the University and made a particular mention of new varieties developed by University Scientists like Jowar, Bajra, Safflower, Sugarcane, Groundnut, fruits and vegetables.

Dr. Annasaheb Shinde, Vice-President, Planning Commission Maharashtra State, while addressing the students, stated that the responsibility of the state and country rested with the new generation to increase the agricultural production. He emphasised that the research work going on in the University was very important which would save the nation in future.

An Agriculture Exhibition of different varieties of crops, agricultural implements, drip irrigation, sprinkler irrigation, and university publications was also arranged.

New Hybrid Variety of Tomato

The Variety Approval Committee for Horticultural Crops of the Punjab Agricultural University has approved a new hybrid variety of Tomato namely Tomato TH-2312 for general cultivation in Punjab. The plants of this variety are determinate and vigorous. Fruits are medium sized, oval round in shape with uniform deep red colour at maturity. They are medium firm and free from cracking and possess thick pericarp with small loculee. Ample foliage provides protection against sun scalding. The hybrid is resistant to the rootknot nematodes.

It gives a total yield of about 260 q/acre and takes about 120 days to bear fruits for first picking if transplanted in November and protected from frost. It is very suitable for processing as it has high percentage of TSS, dry matter lycopene content and good flavour.

Dr. G.S. Gill, Director of Extension Education revealed that TH-2312 is the first hybrid variety of tomato to be released by the Punjab Agricultural University. This variety is likely to boost the tomato processing units in the State. It has also an edge in yield and marketing price as compared to the other hybrids currently under cultivation in the State.

News from UGC

Countrywide Classroom Programme

Between 11th November to 16th November, 1991 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The Programme is available on the TV Network throughout the country.

1st Transmission

1.00 p.m. to 2.00 p.m.

11.11.91

"Remote Sensing - XII : Orbits for Earth Observations - I"

"Authority"

"The Image Evaluation and Synthesis Centre"

12.11.91

"Ways of Thinking - SEP - I : Mind Matters"

"Organic Techniques - I"

"Know More About Your Skin"

13.11.91

"Village and Small Industries"

"Questioning Rock Art France"

"About Bats"

14.11.91

"Programming in PASCAL Language - II"

"Glimpses of Giraria Life - II"

"Byron.. Byron.. Byron - I"

15.11.91

"Vedic Mathematics - II : Urdhva Tiryagbhyam"

"Facing the Future - III : Issues"

"Noise Pollution"

16.11.91

"Short Films - A German View"

"Handicrafts of Andhra Pradesh - Artistic Metal Ware"

"Introduction to Scuba Diving"

IInd Transmission

4.00 p.m. to 5.00 p.m.

11.11.91

"Remote Sensing -VII : Optical IR Sensors"

"Grains Q"

12.11.91

"Life Line"

"The Halogens"

13.11.91

"Non-Conventional Energy Sources - I: Solar Energy"

"Child Welfare"

"Frog Aestivation - A Critical Stage in Life Cycle"

14.11.91

"Nutritional Blindness"

"Martial Art of Orissa - II"(Paik Dance)

"A.K. Mehrotra and His Experimental Poetry"

15.11.91

"Numerical Methods - Solutions of Non-Linear Equations -II"

"Personality Disorders -II"

16.11.91

"Rasa Ranjita - Understanding Indian Dance - 6 : Mohiniattam"

"Photoschool - II"

"Vincent Van Gogh : Painter"

News from Abroad

New Plant Research Institute

A new institute to be called the International Plant Genetic Resources Institute (IPGRI), is proposed to be set up in Rome to help in the conservation and utilisation of plant genetic resources needed for the success of crop improvement programmes. An agreement to this effect is reported to have been signed recently by high-ranking officials from five countries - Kenya, Switzerland, China, Denmark and Italy in the Italian capital to establish the institute which will take over the duties of the International Board for Plant Genetic Resources (IBPGR), which is attached to FAO.

The agreement establishes IPGRI as an independent institute of the consultative group on interna-

tional agricultural research (CGIAR), with an annual budget of more than 300 million dollars. The CGIAR, a group of national governments, multinational aid agencies and private foundations, is the world's largest agricultural research effort.

Its location in Rome will allow IPGRI to work closely with FAO for the development of a global system of plant genetic resources.

In a new ten-year strategic plan to be unveiled in the next few months, IPGRI is expected to focus on strengthening the capacity of developing countries to conserve and utilise their indigenous crop plants and to share these resources through international networks.

Useful but Prohibitive

Navin Chandra Joshi*

J. C. Aggarwal. *Survey of Educational Documents in the World Since 1983*. Delhi, Doaba House, 1991. Pp 348. Rs. 350.00

This book is a compilation of various documents in the realm of education, covering both secondary and higher education, as brought out by various committees and commissions in this country and abroad. The documents have been reproduced in their extracted form. Put under four parts, the material provided by the author is claimed to become a handy source book for educational administrators, authors, planners, reformers, thinkers and above all, research workers.

It is, however, not understood why a highly prohibitive price of Rs.350 has been fixed for this book when it is meant for the benefit of general readers as well. Definitely, the very high price proves that the motivation is more of commercial nature than providing enlightenment to all and sundry.

The future of education in India is too complex to envision with precision. Yet, given our tradition which has almost always put a high premium on intellectual and spiritual attainment, we are bound to succeed in achieving our objectives. The main task of education should be to strengthen the base of the pyramid, which might come close to a billion people at the turn of the century. Equally important is

the need to ensure that those at the top of the pyramid are among the best in the world.

In the context of the International Literacy Year in 1990, the UNESCO had rightly noted that illiteracy is a deep-rooted phenomenon and many years of dedicated persevering and imaginative effort in several related fields are normally required to eliminate it. It further added that illiteracy and poverty go not only hand in hand, but shoulder to shoulder, each supporting the other. "Those who live in want today, in fear of tomorrow, who have neither a stake in society nor a hope in the future, are unlikely to be strongly motivated to become literate." As such, the struggle for literacy is also a struggle for development, justice, greater equality, respect of culture and recognition of the human dignity of all and the claims of each to an economic, social and political role in society and the fruits which derive therefrom. The UNESCO concludes that it is this which makes the struggle against illiteracy difficult; it is also this which makes it essential and worthwhile.

At the end of the book are given the references and names of various committees and commissions and policies on education set up and laid down from time to time in the field

of education in this country. There is also a chapter on schools without drugs culled out from the publication put out by the U.S. Department of Education in 1986. It points out that drugs threaten our children's lives, disrupt our schools, shatter families, and in some areas, shatter communities.... But we cannot expect the schools to do the job without the help of parents, police, the courts, and other community groups. Drugs will be beaten only when all of us work together to deliver a firm, consistent message to those who would use or sell drugs; a message that illegal drugs will not be tolerated. It is time to join in a national effort to achieve schools without drugs.

The report of the Carnegie Forum on Education and Society, New York, 1986, as extracted in this book, has a lot of sermons made for teachers. "Teachers must think for themselves if they are to help others think for themselves, be able to act independently and collaborate with others, and render critical judgement... They must be people whose knowledge is wide-ranging and whose understanding runs deep". To quote another sample, "Teaching like nursing is a feminized occupation.....It is hardly surprising in these circumstances that teachers' salaries rank with other feminized occupations at the bottom of all occupations requiring a college degree."

We Congratulate....

Dr. P. Jayarami Reddy who has been appointed Vice-Chancellor of the Sri Venkateswara University, Tirupati.

*Reader, Motilal Nehru College, University of Delhi, New Delhi.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
November 10-12, 1991	Seminar on Ancient Indian Mathematics	To focus attention on different aspects and ideas about ancient Indian Mathematics.	Willington College, Sangli	Dr. S. R. Kulkarni, Local Secretary, 5th SUMS Annual Conferenc, Dept. of Maths. Willington College, Sangli-416 415
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
August 26-28, 1992	Second International ISKO Conference on Cognitive Paradigms in Knowledge Organisation	To provide a forum for scholars working in the field of knowledge organisation	Madras Library Association in collaboration with Sarada Ranganathan Endowment for Library Science and University of Madras	Mr. S. N. Kumar Conference Secretariat, 5, Sivaganga Road, Madras-600 034
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair - 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

THE COMMONWEALTH OF LEARNING

NOTICE OF VACANCIES

Vacancies exist in The Commonwealth of Learning for suitably qualified persons to be appointed:

**DIRECTOR OF ASIAN PROGRAMMES
HEAD, ADMINISTRATION & FINANCE
SENIOR PROGRAMME OFFICER (TRAINING)**

Applicants should be Commonwealth citizens, and should have a postgraduate degree or equivalent with at least ten (10) years experience in their chosen field. In order to expedite the processing of applications, candidates for posts are requested to submit three written references along with their formal applications and C.V.'s. Applications should be forwarded by December 15, 1991, to the Acting Head of Administration & Finance, The Commonwealth of Learning, # 1700-777 Dunsmuir Street, Box # 10428, Pacific Centre, Vancouver, British Columbia, V7Y 1K4, Canada, Telephone : (604) 660-4675, Fax: (604) 660-7472, from whom further particulars may be obtained. Women are especially encouraged to apply.

TERMS AND CONDITIONS OF APPOINTMENT

Appointments are in the salary range of Cdn\$55,000 to \$70,000 net and will normally be for three (3) years in the first instance. In addition to salary, persons recruited from outside Canada, and who are not Canadian citizens, will be entitled to housing subsidies and educational allowances. Passages to and from Canada from the place of domicile on recruitment and termination will be paid for the appointee, spouse, and up to a maximum of four (4) dependent children. Assistance with shipment of personal and household effects will also be provided.

THE COMMONWEALTH OF LEARNING

The Commonwealth of Learning is an International Organisation established by Commonwealth Governments in September 1988. Its fundamental mission is to promote the development of human resources through the application of distance education techniques and technologies in response to the developmental needs of member countries. It is governed by a Board which is representative of all parts of the Commonwealth, and has its headquarters in Vancouver, British Columbia, Canada.

THE COMMONWEALTH OF LEARNING DIRECTOR OF ASIAN PROGRAMMES

The Director of Asian Programmes will be responsible to the President for the implementation of projects within the framework of the Strategic Plan for COL, and for ensuring that the detailed Work Plan is implemented and monitored. The Director will have an additional functional area of responsibility, preferably in the area of training, but this will depend on the areas of specific expertise of the person appointed.

The Director of Asian Programmes will be a person of extensive experience at a senior level in one or more of the following countries: Bangladesh, India, Pakistan, Sri Lanka, Malaysia, Singapore, Brunei and

the Maldives. A knowledge and understanding of the role of distance education in fostering human resource development would be a distinct advantage.

THE COMMONWEALTH OF LEARNING HEAD, ADMINISTRATION & FINANCE

The Head of Administration and Finance is responsible to the President for the development and delivery of financial, accounting and administrative support services throughout the organisation. A knowledge and understanding of computerised systems of accounting, and the implications of such systems for administrative procedures would be a distinct advantage.

The appointee will be a person who has had at least ten (10) years of experience at a senior administrative level in educational institutions or agencies within the Commonwealth. An insight into the needs of institutions in the developing countries of the Commonwealth would be expected.

THE COMMONWEALTH OF LEARNING SENIOR PROGRAMME OFFICER (TRAINING)

Under the direction of a Director, the responsibilities of the Senior Programme Officer include planning and organising national and regional workshops, identifying consultants for such workshops, developing and being responsible for the production of reports on all aspects of training, obtaining and evaluating materials which support training, and commissioning the development of new training materials in a variety of contextually appropriate media.

Applicants should have a wide range of experience in training for distance education, with emphasis on experience in the developing countries of the Commonwealth, and should have a solid track record of practical experience in this area.

THE COMMONWEALTH OF LEARNING VICE PRESIDENT

The post of Vice President of The Commonwealth of Learning (COL) fell vacant following the resignation of Professor G.Ram Reddy who is shortly assuming duties as Chairman of India's University Grants Commission.

The Organisation seeks a successor to Professor Reddy and invites applications from persons with distinction in the field of distance education. Applicants would be expected to have substantial experience in senior administrative positions as well as highly developed interpersonal and communication skills. Knowledge and experience of working internationally, especially in developing countries, would be an asset.

The Vice President is part of the senior management group and plays a key role in policy formulation and implementation of COL's mandate. An important role involves representational responsibilities throughout the Commonwealth.

A competitive remuneration package is offered and applicants are requested to submit full curriculum vitae and the names and addresses of three referees and the earliest date they can be available to the President, The Commonwealth of Learning, #1700-777 Dunsmuir Street, Box #10428 Pacific Centre, Vancouver, British Columbia, Canada, V7Y 1K4, or by fax: (604) 660-7472, by November 15, 1991.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on higher education. Among the topics prominently represented are educational sociology, educational planning, educational administration, teaching & teachers' training, examinations, economics of education and country studies. Developing fields of adult education, continuing education and distance education, and educational technology are also well stocked.

The library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of higher education. Files of annual reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to the AIU Library'.

The library receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly our column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The library is steadily building up a collection of audio and video cassettes on matters educational and maintains a well appointed Audio-Visual Room equipped with a double deck audio cassette recorder, a VCR and a colour TV monitor, and an overhead projector.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees in Indian Universities

SOCIAL SCIENCES

Psychology

1. Bhawana Nidhi. Enhancing self-efficacy of unassertive females through behaviour modification technique. BHU. Dr (Mrs) S S Kaushik, Reader, Department of Psychology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

2. Diwedi, Vachaspati. Locus of control of children of working and non-working mothers. BHU. Dr M Arora, Reader, Department of Psychology, Banaras Hindu University, Varanasi.

3. Mishra, Rashmi. Some psychological correlates of patients treated by different modalities. BHU. Prof G C Prasad, Department of Psychology, Banaras Hindu University, Varanasi and Dr A P Shukla, Department of Shalya, Shalalya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

4. Rajwinder Kaur. Depression at adolescence: Correlates, attribution and coping strategies. Panjab. Dr V V Upmanyu, Reader, Department of Psychology, Panjab University, Chandigarh.

5. Singh, Dinesh Vikram. Psychological differentiation. BHU. Dr R C Mishra, Reader, Department of Psychology, Banaras Hindu University, Varanasi.

Sociology

1. Alka. Rajya evam grameen vikas. BHU. Dr J K Tiwari,

Reader, Department of Sociology, Banaras Hindu University, Varanasi.

2. Das Gupta, Anju. Kesorvani samudaya ka samajik, arthik parshwa chitra: Varanasi Jile mein parivaron ka samaj vaigyanik adhyayan. BHU. Dr Mohd Salim, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

3. Dwivedi, Shashank Shekhar. Grameen Nirdhanata evam vikas karyakram: Mirzapur Jile ontargata Chhanve kshetra ke chayanit kuchh gaon ka samaj vaigyanik adhyayan. BHU. Dr J K Tiwari, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

4. Gupta, Anjula. Balikayon ke samasyan: Varanasi ke nimne aya samuha parivar per adharit ek samaj vaigyanik adhyayan. BHU. Dr A L Srivastava, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

5. Gupta, Arun Prasad. Jati sangharsha ka samaj vaigyanik adhyayan. BHU. Dr Mohammad Salim, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

6. Mullick, Mily. Bangal se aye hue vidhavan ke samajik prastha bhumi: Varanasi per adharit ek adhyayan. BHU. Dr S R Yadav, Department of Sociology, Banaras Hindu University, Varanasi.

7. Narayan, Shubhra. Tilak aur Bharatiya samaj. BHU. Dr K

D Dwivedi, Department of Sociology, Banaras Hindu University, Varanasi.

8. Pandey, Sanjay Kumar. **Chipko Andolan ka samaj vaigyanik adhyayan.** BHU. Dr M K Chaturvedi, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

9. Pathak, Rajesh. **Grameen vikas ke samajik arthik ayam.** BHU. Dr M K Chaturvedi, Department of Sociology, Banaras Hindu University, Varanasi.

10. Saraf, Veena. **Varanasi ke kuchh vyapari gharano ka samajik itihās.** BHU. Dr S R Yadav, Department of Sociology, Banaras Hindu University, Varanasi.

11. Shukla, Bharati. **Social context of the heart patient.** BHU. Dr P N Pandey, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

12. Shukla, Kanak Bala. **Gramin vikas tatha sevayojan karyakaram ke sthiti.** BHU. Dr K D Dwivedi, Department of Sociology, Banaras Hindu University, Varanasi.

13. Singh, Ashok Kumar. **A sociological study of rural factionalism.** BHU. Dr Ashok Kumar Kaul, Lecturer, Department of Sociology, Banaras Hindu University, Varanasi.

14. Singh, Gyanendra Kumar. **Role of private hospitalization health care.** BHU. Dr A L Srivastava, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

15. Singh, Ramesh. **Madak dravya vyaasan.** BHU. Dr Asha Mehrotra, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

16. Singh, Shyam Pratap. **Gramin vikas karyakram ka gramīn samajik starikaran per prabhav.** BHU. Prof S Tripathi, Head, Department of Sociology, Banaras Hindu University, Varanasi.

17. Singh, Subhash. **Vikas ka samaj shastra: Mau Jile per adharit vaigyanik adhyayan.** BHU. Dr Vishnu Gopal, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

18. Singh, Sunil Kumar. **Chinee mittee udyog ke shramik.** BHU. Dr Manju Biswas, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

19. Singh, Umesh Kumar. **Grameen swasthya: Jehanaved ke Karpi Block ke kuchh chune hue gaon per ek samaj shastriya adhyayan.** BHU. Dr Manju Biswas, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

20. Srivastava, Pratima. **Talak shuda mahilayon ka samaj vaigyanik adhyayan.** BHU. Dr A K Kaul, Lecturer, Department of Sociology, Banaras Hindu University, Varanasi.

21. Srivastava, Seema. **Gramin prasar seva ke roop mein swasthya evam parivar niyojan.** BHU. Dr Manju Biswas, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

22. Tripathi, Aruna. **Samachar patra aur sanchar Ajj Dainik per adharit ek samaj vaigyanik adhyayan.** BHU. Dr Asha Mehrotra, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

23. Tripathi, Sushil Kumar. **Berojgari evam grameen vikas: Mirzapur Janpad ke Narainpur Block ke chayanit kuchh gaon ka samajshastriya adhyayan.** BHU. Dr J K Tiwari, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

Political Science

1. Chaudhury, Meera. **Indo-US relations.** BHU. Dr A S Mishra, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

2. Dubey, Ashok Kumar. **Bharatiya rajniti ke kshettriya dalon**

ke bhumika: Akali Dal ke vishesh sandarbha mein. BHU. Dr R P Singh, Department of Political Science, Banaras Hindu University, Varanasi.

3. Dubey, Shyam Behari. **Ek rajniti dal ke roop mein BJP ka vishleshanatmak adhyayan.** BHU. Dr S K Awasthi, Department of Political Science, Banaras Hindu University, Varanasi.

4. Hashwe, Y B. **Madhya Pradesh ke vidhan mandaliya karya pranali mein dabav samuhoton ke bhoomika san 1956 se 1985 tak.** HS Gour. Dr G P Nema, Reader, Department of Political Science and Public Administration, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

5. Kaushik, Anupma. **Social and political ideas and programmes of Madan Mohan Malaviya.** BHU. Prof Nalini Pant, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

6. Khan, Mohammed Imran. **Role of press in communal violence: Case study of Varanasi, 1978 onwards.** BHU. Dr P Upadhyay, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

7. Mishra, Markandey. **Bharat-Pak sambandh, 1980 ke bad se.** BHU. Dr A S Mishra, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

8. Mondal, Samir Kumar. **India-Nepal relations, 1971-1990.** BHU. Dr A S Mishra, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

9. Mukherjee, Sangita. **Bharat mein daliya vyavastha ka badalata huya swaroop.** HS Gour. Dr S B Shrivastava, Reader, Department of Political Science and Public Administration, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

10. Ojha, Harendra Nath. **Bharatiya rajniti mein arakshan ke samsya: Ek vishleshan.** BHU. Dr R P Singh, Department of Political Science, Banaras Hindu University, Varanasi.

11. Pandey, Parmeshwar Kumar. **Mandal Commission andolan mein press midiya ke rajnaitik bhumika.** BHU. Dr K K Mishra, Department of Political Science, Banaras Hindu University, Varanasi.

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38. Tribhuwan Prasad. **Hindi kee pathya-pustkon mein manav mulya: Uttar Pradesh, Madhya Pradesh, Rajasthan evam Bihar ka navam se dwadash kakshaon ke sandarbh mein.** Panjab. Prof D P Maini, Prof (Retd), Department of Hindi, Panjab University, Chandigarh.

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1. Singh, Thounaojam Khomdon. **Public library system in Manipur and how to develop it by library legislation.** Manipur. Prof M R Kumbhar, Librarian (Retd), Manipur University, Manipur.

Journalism

1. Hazarika, Haren Kumar. **Role of the press in Assam during the Assam movement in foreigner's issue, 1978-85.** Gauhati. Dr A Mazumdar, Head, Department of Journalism, Gauhati University, Guwahati.

Psychology

1. Datta, Sumati. **A study of occupational orientation, job involvement and job performance of sighted and blind workers with reference to the attitude of the employers towards blindness.** Calcutta.
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4. Seth, Saroj. **Nutrition and intellectual development.** Osmania.
5. Srivastava, Sudha. **Effects of experiential deprivation and anxiety on episodic-semantic distinction.** BIIU. Dr C B Dwivedi, Reader, Department of Psychology, Banaras Hindu University, Varanasi.
6. Suri, Radesh Krishan. **A study of hemisphericity, motivation and cognitive abilities as determinant of academic achievement in school children.** Delhi.
7. Updesh Kumar. **A study of correlates of suicide ideation among homogeneous groups of psychosis prone university students.** Panjab.

Sociology

1. Borbora, Jayanta. **A study of theft in Assam: Based on the study of convicts in the prisons of Assam.** Dibrugarh. Prof D Doley, Department of Sociology, Dibrugarh University, Dibrugarh.
2. Borthakur, Birendra Nath. **Communication and village development.** Dibrugarh. Prof D Doley, Department of Sociology, Dibrugarh University, Dibrugarh.
3. Chacko, M P. **Managerial class in Kerala: A sociological analysis.** Kerala. Dr P K B Nayar, Prof and Head (Retd), Department of Sociology, University of Kerala, Kariavattom.
4. Lakra, Christopher. **Tribal in urban setting: A case study of the Oraons in Ranchi City.** Delhi.
5. Medhi, Prafulla. **Religion among the Sonowal Kacharis of Assam.** Dibrugarh. Prof D Doley, Department of Sociology, Dibrugarh University, Dibrugarh.
6. Nagla, Madhu. **A sociological study of medical profession: A study of medical organization and profession of medicine in Haryana.** JNU. Prof Yogendra Singh, Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.
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Haryana. Jamia. Prof Mohini Anjum, Department of Sociology, Jamia Millia Islamia, New Delhi.

Social Anthropology

1. Chattopadhyay, Sikha. **Anthropological demography of paschatya vaidik brahmana of West Bengal.** Calcutta.
2. Phukan, Jogada. **Change and continuity of traditional Nishi political organisation.** Dibrugarh. Dr K C Mahanta, Reader, Department of Anthropology, Dibrugarh University, Dibrugarh.

Social Work

1. Haider, Ishtiaq. **A comparative study of some selected psychological characteristics and academic achievement of visually handicapped children in special schools and in integrated settings.** Jamia. Prof M Z Khan, Department of Social Work, Jamia Millia Islamia, New Delhi and Prof M Abu Baker, Department of Teacher Training and Non-Formal Education, Jamia Millia Islamia, New Delhi.

Political Science

1. Bhaskaramma, K. **Political awareness and political participation of scheduled caste women: A case study of Telangana Region in Andhra Pradesh.** Osmania.
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19. Uttara Kumari. *Administration and management of financial institutions with special reference to Industrial Finance Corporation of India*. Magadh.

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Economics

1. Attri, K P. *The economics of water use and management in District Saharanpur*. Roorkee.

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Law

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Education

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Pay Scale: Rs.5900-200-7300 plus NPA for medically qualified candidates only.

Note:- 1. For the posts of Professor of Laboratory Medicine, Anatomy, Pharmacology and Physiology both medical and non-medical candidates will be considered.

2. The posts of Professor of Ophthalmology are for Dr. R.P. Centre for Ophthalmic Sciences at the AIIMS, New Delhi.

3. The post of Professor of Radiotherapy is for Institute-Rotary Cancer Hospital at the AIIMS.

4. The posts of Professor of Cardiology, Cardio-Thoracic and Vascular Surgery and Cardiac Pathology are for Cardio-Thoracic Centre at the AIIMS.

- 2. ADDITIONAL PROFESSOR:** Thirteen : Two for (1) Cardio-Thoracic and Vascular Surgery and one each for (2) Medicine (3) Venereology (4) Electron Microscopy (5) Biophysics (6) Anaesthesiology (7) Hospital Administration (8) Community Ophthalmology (9) Medical Oncology (10) Neuro-Surgery (11) Urology and (12) Paediatrics.

Pay Scale: Rs. 5100-150-6300- plus N.P.A. for medically qualified candidates only.

Note:- 1. For the posts of Additional Professor of Electron Microscopy, Biophysics and Hospital Administration both medical and non-medical candidates will be considered.

2. The posts of Additional Professor of C.T.V.S. and Anaesthesiology are for C.T. Centre at the AIIMS.

3. The post of Additional Professor of Electron Microscopy is for the Deptt. of Anatomy at the AIIMS.

4. The post of Additional Professor of Hospital Administration is for Common Services of CTNS Centre at the AIIMS.

5. The post of Additional Professor of Community Ophthalmology is for Dr. R.P. Centre for Ophthalmic Sciences at the AIIMS.

6. The post of Additional Professor of Medical Oncology is for Institute-Rotary Cancer Hospital at the AIIMS.

- 3. ASSOCIATE PROFESSOR:** Seventeen : Three for (1) Physiology and two each for (2) Paediatrics (3) Radio-diagnosis and (4) Microbiology and one each for (5) Radiotherapy (6) Medicine (7) Ocular Biochemistry (8) Ocular Microbiology (9) Hospital Administration (10) Clinical Neuro-Physiology (11) Obst. and Gynaecology and (12) Paediatric Surgery.

Pay Scale: Rs. 4100-125-4850-150-5300 plus NPA to medically qualified candidates.

Note:- 1. For the posts of Associate Profes-

sors of Physiology, Ocular Biochemistry, Ocular Microbiology and Hospital Administration both medical and non-medical candidates will be considered.

2. Of the two posts of Associate Professor of Radio-diagnosis, one post is for Cardio-thoracic Centre at the AIIMS.

3. The posts of Assoc. Professor of Radiotherapy and Hospital Administration are for Institute-Rotary Cancer Hospital at the AIIMS.

4. The posts of Assoc. Professor of Ocular Biochemistry and Ocular Microbiology are for Dr. R.P. Centre for Ophthalmic Sciences at the AIIMS.

5. The posts of Assoc. Professor of Clinical Neuro-Physiology is for Neuro-Sciences Centre at the AIIMS.

- 4. ASSISTANT PROFESSOR:** Eleven : Two each for (1) Psychiatry and (2) Clinical Psychology and one each for (3) Biostatistics (4) Anatomy (5) Community Ophthalmology (6) Ocular Pharmacology (7) Community Medicine (8) Biochemistry and (9) Biotechnology.

Pay Scale: Rs. 3500-125-4500 plus N.P.A. for medically qualified candidates.

RESERVATIONS

5 posts are reserved for Scheduled Castes candidates and 5 posts for Scheduled Tribes candidates.

Note:- 1. For the posts of Asstt. Professor of Anatomy, Ocular Pharmacology, Biochemistry and Biotechnology both

POSTGRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH, CHANDIGARH

Addendum

Reference : This Institute's Admission Notice No.22/91 (Acad) published in this paper on 21/10/91. It is for information of all concerned that a few seats for sponsored/deputed candidates will also be available for M.Ch. courses in Neuro Surgery and Plastic Surgery.

O.P. Sharda
REGISTRAR

medical and non-medical candidates will be considered.

2. The posts of Asstt. Professor of Psychiatry, Clinical Psychology and Biostatistics are for De-addiction Centre based at Deen Dayal Upadhyaya Hospital, Hari Nagar, New Delhi.

3. The posts of Asstt. Professor of Community Ophthalmology and Ocular pharmacology are for Dr. R.P. Centre for Ophthalmic Sciences at the AIIMS.

5. **PRINCIPAL, COLLEGE OF NURSING:** One
Pay Scale: Rs.3700-125-4700-150-5000.

N.B. 1. All posts carry usual allowances as admissible to Central Govt. servants of similar status stationed at Delhi/New Delhi.

2. Scheduled Castes and Scheduled Tribes candidates called for interview will be paid travelling allowance as per rules of the Institute.

3. The effective date upto which the requisite experience must be completed will be 30th June, 1992.

UPPER AGE LIMIT

50 years, relaxable for Govt. servants, Scheduled Castes and Scheduled Tribes candidates or otherwise exceptionally qualified candidates. Upper age limit upto 5 years is relaxable in the case of Scheduled Castes and Scheduled Tribes candidates.

N.B. The essential qualifications are relaxable at the discretion of the Selecting Authority.

Note:- This advertisement is a repetition of the earlier advertisements No.1/90-Estt.I, No.8/90-Estt.I and 3/91-Estt.I published in various news papers in the month of February, 1990, November, 1990 and April, 1991 respectively. Those candidates who had applied earlier in response of these advertisements may apply if there is any change in their status with regard to qualifications, experience, publications or any other matter considered to be of relevance by the candidate. If fresh applications are not received, earlier applications will be considered on the basis of the information furnished in the application forms submitted earlier. Persons who have applied earlier and now wishing to apply afresh or provide supplementary information may do so without remitting any additional application fees. However, a reference to the earlier application should be clearly made.

Application form and other information can be obtained personally or on written request accompanied by a self-addressed stamped (Rs.3.00) envelope (23 x 8 cm) from the office of the Senior Administrative Officer, Administrative Block, AIIMS, New Delhi.

CORRIGENDUM

Reference: This Institute's Advertisement No.5/89-Estt.I

(Advertisement No.1/90-Estt.I Corrigendum to Advertisement No.5/89-Estt.I), published in February, 1990 for various faculty posts at the AIIMS, New Delhi.

The advertisement for the post of Medical Superintendent for R.P. Centre appeared in February, 1990 in various dailies for which last date for receipt of application was 30th March, 1990 is hereby treated as cancelled/withdrawn.

HAMDARD UNIVERSITY NEW DELHI 110 062

APPLICATIONS on plain paper alongwith Biodata are invited by the undersigned for the following positions (for three years):

1. Research Associate (One) : Rs. 2700-100-3200 + HRA.

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Desirable : NET (UGC/CSIR) qualified.

3. Laboratory Attendant (One): Rs. 1500 p.m. fixed.

Qualifications : Matric with Science in the DBT sponsored research project, "In Vitro Mass Propagation of Genetically-defined Clones of Pinus and Betula" to Dr. P.S. Srivastava, Department of Botany, Faculty of Science.

4 Research Associate (One) : Rs. 2200-100-3700-125-4325

Qualifications : M.Sc./Ph.D. Chemistry/Biochemistry / allied discipline.

Desirable : Experience in animal handling in the CSIR sponsored research project "Novel Superoxide Dismutase Mimics : Approach for Biomedical Applications" to Prof Mohammad Athar, Head, Department of Medical Elementology and Toxicology, Faculty of Science.

Last date for receiving the applications : within 15 days of the advertisement.

REGISTRAR

ANNAMALAI UNIVERSITY NOTIFICATION

59th Annual Convocation - 1991

The 59th Annual Convocation for conferring Degrees, Titles and Diplomas will be held at Annamalainagar during the month of November/December, 1991.

Filled in applications from the candidates for taking Degrees, Titles and Diplomas either IN PERSON or IN ABSENTIA must reach the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR 608 002 on or before 15th November, 1991. Printed forms of applications can be obtained by sending a self addressed envelope affixing Rs.1.80 paise stamp.

Post Graduates, Professional and Research Degree holders and Prize winners of all the faculties alone are eligible to receive the degrees "IN PERSON". All the others are required to apply for taking their degrees "IN ABSENTIA".

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Those who have not already submitted their applications for the Degree/Diploma (In Absentia) may submit the same on or before 15th November, 1991. Separate application form will be issued for the Distance Education Graduates.

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UNIVERSITY NEWS

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not necessarily reflect the policies
of the Association.

Editor :
SUTINDER SINGH

The Makings of a Good Teacher

K. Venkata Reddy*

While Aristotle says that education is necessary for good life, Plato feels that good education is necessary to make man better than he is. We may add that if education is necessary for good life, and if good education is necessary for making man better, a good teacher is necessary for making education whatsoever it can be.

The need of the hour, therefore, is a good teacher. We cannot dream of good education without good teachers. One who is not a good teacher, would seldom make a leader of youth. When the question of leadership is taken up, it is taken for granted that teacher is a good craftsman, engineer, gardener, or an artist. His leadership comes to him by virtue of his intellectual stature or academic achievements, general knowledge, wide experience, maturity and wisdom.

A good teacher is respected and admired by his pupils, primarily for stimulating the learning process. A good teacher is also respected and admired by his pupils, secondarily, for his courteous treatment.

A good teacher needs, therefore, not only mastery of subject matter to be taught but also the quality of adjustment. A teacher who is indifferent to his work or is lacking in the quality of adjustment, is doomed to failure. The quality of adjustment can be cultivated by putting a lid on anger, by remaining calm, and by looking at both the sides of difference.

The student depends upon his teacher for his academic success even as he depends upon his parents for his living. But the student has a growing personality and the teacher has a grown-up personality, and the two come in formal contact with each other. This contact leads to an interaction which has three stages : (a) acceptance of each other, to begin with; (b) conflict in one form or another; and (c) adjustment in the spirit of coexistence, of live and let live, in mutual interest.

While at the intellectual level, they are to cooperate, at the personality level they might clash. It is, therefore, desirable that the teacher should have understanding of pupil's nature, its growing, developing and experimenting nature. Ideal personalities are rare in this profession, but the spirit of adjustment can be cultivated individually, by understanding, sympathy and the will to do so.

The teacher is not merely an actor on the dais of his classroom; he is not merely a judge of the academic achievement of his pupils; he is not merely a director of co-curricular activities of his students; he is not merely an account-assistant of school office; he is not merely a recordkeeper of the periodical progress of his wards; he is not merely a supervisor of their studies and sports; he is not merely an assistant administrator to the Head; he is all these rolled into one. And yet, he is more than a teacher. He is a natural leader of his pupils and wards!

The natural leader of pupils becomes seasoned, ripe and mellow, with years and, truly speaking, a philosopher, friend and guide. The teacher's learning, experience, academic achievements, and general knowledge lend to his physique and age, a greater prestige, in the eyes of his pupils.

(Contd. on page 5)

*Professor of English, Sri Krishnadevaraya University,
Anantapur - 515 003 (A.P.).

CREATIVITY IN HIGHER EDUCATION

A SUGGESTED MODEL

Gitika Dutta-Dhupkar*

Many have looked upon recent trends in education as hostile to creative effort. Elbert Hubbard was right in railing against all forms of higher education, save one — "The University of Hard Knocks". Passivity is the most dangerous pitfall in contemporary education. The student is kept happy and satisfied with himself because he is never given anything that might strain his ability which goes all the way to weaken the effort so essential to creative power. Here Hardin Craig's criticism may be truer than ever: "If we could only find out why college men are so lazy ... There is no other group of men that I know ... who are so indolent."

One of the main reasons is that, most of our students of higher education deliberately spend their college years just 'getting by'. The passivity of the college and university programme encourages this lack of exertion. If our future leaders are thus subjected to years of training in not trying, whence will come the effort indispensable to creative power?

There is an even greater dearth of creative exercise in higher education. There is a reason to believe that in coming years the university which contributes most to the advancement of learning and the cultivation of the human spirit will be the one to strive to develop and sustain creativity for the obvious reason — to counteract the psychoses that has gripped the learning atmosphere. Considering the increasing number of problems engendered by the psychic state — mental shocks, conflicts, stress, anxieties, frustrations and depressions — looks toward a psychological mechanism and method for their control. All these are non-creative forms of expression, all too normal and often accepted as uncontrollable. Creative effort can be used as an antidote to these problems. By driving the students' imagination into Healthful Lanes, we can do much to drive away these problems.

Henry Link and other eminent psychologists agree that lack of creative effort is often at the bottom of mental unrest and nervous upsets. The prime purpose of creativity in higher education would be to steer the students' mind into creative channels. Isn't it obvious

that when nerve need calming, activated creative effort is a most likely remedy? Isn't it obvious that when a mind gets twisted with an inferiority complex, one way to help untangle it is to make the student do something creative, and thus induce a curative sense of self-respect?

Today the really crucial problems are all deep in nature and in the higher learning situations. With our long preferences for appearances, for tangible material realities, for perceptible facts, acts and technics, for the processes and conclusions of conscious rationality, and for quick attainment of demonstrable results — with this acquired bent of things that one can plainly see, grasp, count, weigh, manipulate, and 'get by' the probability of our solving or even seriously grappling with the strategic problems of our education does not appear to be encouragingly high.

The emotional deficiency diseases, a paralysis of the creative imagination, an addition to superficials in our educational planning, administration, teaching and curriculum can be taken as the main cause for the greater part of the widespread desperation prevailing in higher education. The enormous calm of people who are living with half a heart, half a lung paralysis of imagination are accountable to the fact that most of us have lived with comfort so long, have turned our eyes away from the one thing we should be looking at; the possibility and probability of co-extermination.

Psychologists are stressing more and more the need to 'Motivate' the students — to focus their mind on the goal they should expect to attain. Shouldn't we try to make the students think more about their minds and mould their minds? To that end, we might motivate through inspiration and lead them to look up to the mind with the reverence it warrants. In *Human Destiny*, dy Nouy concluded that the human brain took 1600 Million years to evolve. Wouldn't this awe-inspiring fact be worth stressing? And also the fact that nearly all great thinkers have agreed that creative imagination is the gift which sets man apart from animals. Even our pride might be appealed to on this point.

To offset that blight, couldn't we do more to give our students a new concept of effort? Shouldn't our educa-

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tion also try harder to make students understand that the development of conscious effort is a fundamental purpose of their education? It certainly should be, if there is any truth in Thomas Huxley's statement that 'the most valuable result of all education is the ability to make yourself do the thing you have to do when it ought to be done, whether you like it or not.'

A Suggested Model for a Course in Creativity

It is also essential to consider as to whether creative power is important enough to justify a separate course. Surely the workings of Man's creative mind could well be as worthy of a course by itself. It is a known fact that men can be inspired, even tutored, in creative work; however there is also a lot of Skepticism as to the practicability of a course in creativity. A special course in creative thinking could and should be added to the regular college and university programme.

A special course in thinking might present an especial opportunity for a breakthrough in higher education. In a sense it would mean going vocational and true, for to learn how to work one's creative mind is a definite step toward learning how to make a living in any vocation or profession — realistically preparing a student for the world and the career that follows graduation.

From very different approaches to educational philosophy and educational operations, we are aware of the great need for more emphasis upon student initiative and the fulfilment of the students' intellectual needs, under the heading of the goal of teaching for creativity. This means not only teaching more imaginatively but also promoting by teaching the development of creative skills and creative attitudes in students. Since an array of teaching media are available and are probably here to stay, it is well that we consider how they may be used more constructively in so far as students are concerned, both in terms of teaching ordinary subject matter and in developing creative-thinking skills and creative attitudes.

For this purpose a general model for creative development is put forth based on large part upon the structure-of-intellect concepts as a basis of survey the kind of skills that need to be cultivated for increased creativity. Some conditions favourable for acquiring these skills are suggested and a general discussion regarding the teaching media is also presented.

Some Guiding Principles

Deciding what has to be learned?

The first and above everything else we need to have clear and extensive ideas about what it is the students

are to learn. Such items of information after all, constitute educational goal ideas. Then we should be ready for the next question of how the teaching can best be done. If the answer to this question calls for teaching media of certain kinds, we must then find the media, if they already exist, and invent them if they do not exist. The question to be asked is; here are some teaching media, what can we do with them to promote creativity?

Determining what it takes to be creative?

We cannot get far in pursuit of the first goal without also working towards a companion goal of understanding the nature of the mental phenomenon with which we have to deal. Creative disposition or creative potentiality has already been the subject of considerable investigation by one method or another. There is a growing knowledge of the kinds of traits involved in the individual recognized as having greater probability of producing novel, yet relevant, if not socially worthy, results. Some of these traits are in the nature of thinking skills or strategies, often recognizable in terms of common factor intellectual.

Other traits are in the motivational category, including needs, interests, and attitudes. Still others are in the temperamental sphere. From the knowledge about characteristics of potentially creative people, much of which we already possess, we have some basis from which to make a beginning on the problem of teaching for creativity.

Deciding which contributing qualities respond best to training?

If we happened to be convinced that all the qualities that contribute to creativity are completely constitutional or determined by heredity, as educators we should close our teaching shops and go home. But being optimistic, we should proceed without efforts. In view of the large number of apparently contributing qualities, on the one hand, and limited resources and time, on the other, however, there is need to make some choices as to where to place our first efforts. A much better basis would be to decide in terms of which qualities are most trainable and which qualities if trained will yield the greatest total gains, amount of effort being relatively equal.

Although there is no uniform decision as to which qualities are better trainable, there is a consensus that motivational qualities are more promising candidate for change. In line with our general educational philosophy and efforts, changes in abilities, including intellectual skills, are most readily changeable through the appropriate kinds of experiences.

The intellectual aspects of creative performance are more obviously recognizable. Some already existing teaching procedures could be applied or adopted or developed by analogy to those already employed in teaching students "How to think". Furthermore, such procedures can be more definite and straightforward. Thus there is a repertoire of standard methods such as brain storming, synectics, attribute listing morphological analysis and so on, and such methods are available for adaptation to teaching media by organizing method and medium into single strategies of operation.

Most training should be general rather than specific

As has been repeatedly emphasized, there is always some degree of transfer in every act of creative thinking; terms of information are recalled and used in some connection other than that with which they were learned or in some new form in which they were not experienced before. The implication of this is that the general aspect of information should be emphasized in the learning of information, and strategies should be learned that have general application in connection with new information.

Broader intellectual aspects should be recognized

The high premium that is placed on intelligence for academic achievement is very narrow and neglects the broader intellectual aspects. The relation of creative abilities to intelligence, as traditionally known and measured, has shown that the correlation between creative potential and intelligence is positive but low. From this it may be stated that, being high on what is measured by intelligence tests is a necessary condition for high creativity, but it is not a sufficient condition. We may also say that no one can be very low in intelligence test score and also be very creative. In conclusion it may be said that while in possession of an abundance of information, many other abilities are involved in creative thinking.

Guilford (1964) has stated that, creative thinking and problem solving are essentially the same mental phenomenon. Now problem-solving is just about as broad as behaviour itself involving different kinds of information. In order to cover the possible range of problems and their solutions, we need a comprehensive and systematic approach such as that provided by the structure of intellect theory (Guilford 1959). In other words, the structure of intellect offers a broad and systematic taxonomy of behaviour, and novel behaviour may touch upon almost any aspect of it. Thus the logical conclusion which we can draw is that a plan of creativity

training should be sufficiently broad to take into account all potentially useful intellectual contributions.

Training should include giving knowledge of the psychology of thinking

In the development of skills of certain kinds, it is one thing to provide contrived drills that we think will develop those skills; it is something else to provide some enlightenment concerning the nature of those skills along with those drills.

Courses on creative thinking commonly give a certain amount of informative instruction along with drill exercises in creative thinking, where students are sufficiently mature. Apparently a high degree of maturity is not needed, for Torrance (1963) found that providing children with only minutes of instruction on the nature of divergent thinking seemed to give them an advantage in tests of divergent production abilities. On a more extensive scale, it should be of considerable value to give instruction to all students, as soon as they are ready for it, concerning all their different intellectual resources in terms of the factor abilities.

Tolerance for Creativity Behaviour

To cultivate and sustain genuinely creative behaviour, a society must in a variety of ways encourage these personality characteristics which seem essential for such behaviour. In our educational climate we can at least tolerate them. There are many clues about the nature of the creative person from the studies of Mackinnon (1961, 1962), Barron (1963) and others. It seems we should be specially mindful of these characteristics that are necessary for genuinely creative behaviour but which are not especially honoured in our society.

The personality characteristics that rank high in creative behaviour in all cultures are : a good guesser; intellectual courage; emotionally sensitive, an intuitive thinker; playful and child like, a visionary individual; who regresses occasionally; and is unwilling to do things on mere say-so without examining the evidence; along with flexibility of personality, fluency of ideas, and divergent thinking ability. On the other hand our education gives great rewards for being obedient, courteous, willing to accept any judgement, discourages strong emotion, independence of thinking and receptiveness.

These personality characteristics can develop best on creative projects outside the curriculum. Most of the training for creativity comes from extra-curricular ac-

tivities on the campus, and such activities should be encouraged by education.

Even pranks can develop creativity, an invitation to clean fun should be encouraged. If we give an outlet for the youths' suppressed creative energy, perhaps we can prevent violence, anti-social activities and youth unrest in our institutions of learning.

Conclusion

Concentration of education on the creative mind might radically remake education according to Professor H.A. Overstreet : "Let us suppose that we should become convinced that creative power is possessed by everybody; and that there are ways of stimulating and of training it which are capable of increasing it far beyond

its latent conditions. Education should be revolutionized ... Its major energies would be directed towards the arousing training of the inventive powers ... A society alive with inventive power would, on the whole, be the most powerfully progressive society".

"Civilization is a race between education and catastrophe". Our future may involve a similar race between education and our ability to keep ahead creatively. "The challenge confronts us as educators", said Professor Eaton, "to develop ingenuity, initiative, and resourcefulness. ... This challenge becomes more important when we are brought to the stern realization that the economic supremacy of any country may soon rest upon the creative ability of the citizens rather than upon the rich natural resources we once possessed".

The Makings of a Good Teacher

(Contd. from page 1)

A teacher is, thus not merely a teacher but a leader of his students who look up, with respect, to him, for many a thing and sometimes hunger for a word of guidance, appreciation, approval, encouragement or consolation. His heart should be in his eyes and his eyes everywhere.

Furthermore, a good teacher regards others democratically as equals, and treats them as equal citizens. The sense of equality teaches one tolerance. The sense of equality teaches one to accommodate others. The sense of equality would restrain one from losing temper, from shouting in anger, or from using harsh language.

The sense of equality is democratic as well as spiritual. The teacher must accept as a social postulate that irrespective of age, learning and status, the pupil and the teacher are equal as fellow human beings. This sense of equality translated into daily conduct is called humanism. Humanism in education stands for treating children as equals even though they be backward, dull or delinquents. So, the teacher must be efficient in work and a humanist in treatment.

"Teachers can be described in many ways", says G. M. Fleming, "they have been likened to artists, to gardeners or more recently, to social engineers, and each phrase conveys some inkling of their power". But, he adds : "Better tribute may... perhaps he made to both wisdom and experience by using the more humble word 'craftsman' in designation of a teacher's skill. Teachers

are craftsmen in their concern with the material under their hand. They are cognizant of the variety and the uniqueness of their charges and aware of the personal and social processes by which modifications can be wrought".

UNIVERSITY NEWS

A Weekly Chronicle of Higher Education

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SCHOOL MAPPING

A Technique of Micro-Level Planning

Pushpa Kathuria*

Once a professional colleague came to my office. While talking she asked, "Do you draw maps for schools in this project? Why did they appoint you for a job when a cartographer was already on the staff?" At that time, I could not comment or laugh at her statement because she is not the only person to opine that way. There are many others including those from educational institutions too who are not aware of this micro-level planning technique viz. School Mapping. But at that very moment, I decided to write on this topic because at least employees who belong to educational institutions should know the meaning and applications of this technique.

School Mapping is a set of techniques and administrative procedures that are applied to plan the distribution, size and spacing of schools. It is also known as 'School Location Planning'. The primary aim of school mapping is to match the distribution of schools (and more particularly, the student spaces in those schools) to the distribution of the potential population to be served.

It is very difficult to frame a precise definition of this technique of micro-level planning because it encompasses a wide canvas. Earlier, planners used this technique for only location planning aspect of schools and they framed the definition like : 'School Mapping is a technique of micro-level planning for allocating an appropriate site for opening a new School'.

OR

"The process of locational planning in education is known as School Mapping."

Subsequently, rationalisation of existing Schooling facilities came to be included in its purview which implied closure, shifting or amalgamation of schools. Thus, the definition came to be modified as :

'School Mapping is a technique of micro-level planning for expansion and rationalisation of educational facilities particularly at elementary and secondary levels of education in accordance with the norms'.

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Again, with the realisation that achieving the target of Universal Elementary Education (UEE) looked difficult with the formal system of education alone tackling the problem, the non-formal system of education was considered as an alternative to the formal system and also as a supplement for it vis-a-vis the dropouts. As a result thereof opening and rationalisation of Non-Formal Education (NFE) Centres was also included in school mapping. Then, provision of staff (teaching and non-teaching), building, location, furniture, equipment, etc. and the optimum utilization of all these facilities were issues that came to be included in the self expanding dimensions of School Mapping.

Consequently, school mapping covers the following areas of schooling facilities :

- (a) Rationalisation of existing facilities by :
 - i) Shifting, closure or amalgamation of institutions;
 - ii) Optimum utilisation of teaching or non-teaching staff; and
 - iii) Optimum utilisation of building, equipment furniture, etc.
- (b) Provision of new or additional facilities by :
 - i) Opening of new institutions or upgrading of existing ones;
 - ii) Providing additional teaching and non-teaching staff; and
 - iii) Providing new or additional buildings, furniture and equipment in institutions, etc.

Thus, school mapping performs the double functions of equalising of educational opportunities and of optimising the utilisation of existing facilities.

School Mapping was formally introduced first in France in 1963, when the Government decided to raise the school-leaving age to 16, a policy that required immediate construction of a large number of lower-secondary schools, then a set of guidelines, norms and procedures was drafted which was called 'School Map'. In 1970, the International Institute for Educational Planning (IIEP) launched a research project on the Methodology of School Mapping. Since then, many

countries have started introducing school mapping, some on an experimental basis and others on a large scale. A sample listing includes countries as different as France and the Soviet Union among the industrialised countries, Colombia and Mexico in Latin America, Ivory Coast, Burundi, Nigeria and Tanzania in Africa, Thailand and Bangladesh in Asia, Algeria and Morocco among the Arab States.

School Mapping is a continuous process like manpower planning and in regular years this technique not only becomes continuous process of recording and updating the data, but it also provides a set of norms and criteria to be applied when preparing the budget. School Mapping technique can also be used in :

- i) Assessing the aims and targets of the national plan as they relate to the particular area.
- ii) Constituting a useful administrative instrument for the introduction of reforms and for rationalisation, generally.
- iii) Facilitating implementation and continuous evaluation of the plan.

While using this technique, the main functions of National Ministries of Education in this process are :

- (a) In the setting of national norms on such variables as school and class size, pupil teacher ratio, building requirement, and costs;
- (b) In establishing the general relationship between the distribution of population and the schools and their catchment areas; and
- (c) In the identification of inter-regional variations in the quantity and quality of education and in planning to reduce or eliminate these variations.

Applications

This technique is used for planning and implementation of locational plans and programmes. It can be applied to all sectors of education. When one uses this technique for other than school level (up to secondary) of education, the nomenclature may be changed i.e. University/College Mapping, etc. One can use this technique in industries, companies, factories, etc. But here we are concerned with Education Sector only.

There are many examples like :

- (i) Extending the periods of compulsory education;
- (ii) Restructuring of educational system;
- (iii) Improving quality of education; and

- (iv) Expanding school facilities/Higher Education facilities in a particular area.

This technique can also be used to deal with the following problems:

- (a) Assessing the effects of a decline in the numbers of school going age children as a result of birth control programme or a decrease in regional problems;
- (b) Listing the factors affecting the instruction of structural reforms in the school system;
- (c) Apprising the possibilities of universal primary schooling in rural areas with very scattered population, and determining the obstacles in the way of rationalizing educational supply in town areas where land is a rare and very expensive commodity; and
- (d) Pinpointing the advantages and difficulties of integrating the school map with rural planning schemes.

Factors to be considered

While doing this exercise of school mapping, there are a number of factors that should be considered. These are asunder:

(a) *Demographic factors*

Growth of population, school-going age population, geographic distribution, age, sex, migration, etc.

(b) *Education factors*

The number of class periods per hour, distribution by subjects, number of pupils per class, teacher workload, normal length of school.

(c) *Geographic factors*

Ways and means for the pupils to get to the schools in terms of geographical topography, roads, lanes, etc.

(d) *Economic factors*

Minimum and maximum size of the schools/classes and sections.

(e) *Political factors*

Those political and policy priorities and constraints which usually dictate the creation or expansion of specific types of educational institutions.

(f) *Manpower factors*

Present and future structures of employment which

generally affect the relative weights in educational contents and diversification.

(g) Multiplicity of controlling authority

Many authorities controlling one school, different schools under different authorities.

Methodology of School Mapping

School Mapping is a planning exercise prepared at the regional level or local level. It encompasses three phases; diagnosis, projection, and preparation of specific proposals.

The diagnosis of the education services can be carried out easily. It is a very important phase because we examine the existing situation and analyse how the present school map meets the objectives of the education policy. The diagnosis requires the setting up of an efficient data base.

After comprehensive diagnosis, it is necessary to make projections, in order to identify the potential need for education in terms of future school age population and educational policy objectives. Projects are prepared by administrative units.

In terms of the preparation of proposals, it is necessary to draw perspective school maps. This perspective school map should allow equalisation of opportunities and teaching conditions while respecting certain norms and standards in determining staff and building requirements.

This technique is likely to give good results if single authority preferably Government control is there. This control is necessary for implementation and monitoring. Whenever, this technique is used, one should check and redefine the terms with development and should change the norms also accordingly. Earlier, catchment area was defined as: 'Catchment area of a school is the area included in the circle with school as the centre and the radius equal to the prescribed distance from home to school', which varied in individual cases. Subsequently, when planners found some problems, they redefined this term as 'Catchment area on the basis of the convenient walking distance from the habitation to the school.' Similarly, if transportation facilities are improved then one can redefine the term and catchment area can be determined in terms of travelling time instead of distance.

This technique is particularly useful in planning at Micro Level. For example, it is not difficult to deter-

mine the 'number of new schools to be opened at the national level or State level' as this number will be determined more on the basis of availability of financial resources than any other. But when one has to determine the number of schools for each district/block or to locate the village in which a school may be opened the question of fixing priorities has to be decided on the basis of indices worked out in school mapping exercise. The same is true for rationalisation exercise, be it for schools, teachers or facilities.

The other situation in which this exercise helps the planners and administrators is where political and social pressures work on them to locate schools in specific places. In case the administrators have the proper data base with them and have fixed priorities for all claimants then it is difficult for the pressurising forces to ask for deviations from the planned proposals as any deviation from norms shall have to be justified with specific reasons. Even the leaders of political parties who are under pressure from their workers are saved of the embarrassing situation they face at the hands of the administrator on one side and the workers on the other, because with the use of this technique the locations are fixed in order of priority and it gives a good handle to everyone to save the situation.

In conclusion it may be stated that the concept of School Mapping, which at the start covered the limited objective of location in the context of scarce resources and fixing of priorities for competing sites with their individual claims, has gradually come to include in its gamut a wide range of aspects like location, facilities like school plant and auxiliaries, the human resource need particularly for the skilled ones. In addition it is not only the opening of new institutions and provision of additional facilities but the rationalisation of the existing ones, consideration of their economic viability and need to reorganise their networking for optimum utilisation of the economic inputs. The economic considerations, of course, shall be subordinate to the social considerations to the extent possible. Its coverage today includes not only planning for scarcity but also planning for the existing excess over need. But to get the best results from school mapping among other pre-requisites the one of a single controlling authority instead of the multiple ones is the most important. With multiplicity of controlling authorities and managements the results obtained cannot be claimed to be the best ones. It may need redefinition of social objectives and a change in social attitudes because only then the economic constraints can be best manipulated to yield the optimum benefits.

Improvement in College Education With Special Reference to Uttar Pradesh

Pratima Asthana*

College education is an integral part of higher education. The purpose of college education is to provide the students with courage and capacity to face the intricate problems of life and to train them for joining more specialized teaching and research in the universities. In Uttar Pradesh, the mushroom growth of colleges, specially in the interior parts and in rural regions has been responsible for a gradual qualitative decline in academic standard. It would not be out of place to mention that some of these colleges are being run in the buildings meant for Intermediate colleges. Even the management is common with a few changes. There has hardly been any imagination on the part of the people who have established these colleges. Proper planning and a purposeful functioning is almost lacking. Even the colleges known as rural colleges do not cater to the local needs.

Obviously, the entire landscape of college education appear to be full of despondency and frustration. The colleges, in the larger context, are sending out maladjusted youths who are just bewildered to find no job opportunities and do not possess adequate courage to face the hard realities of life. In an environment full of social apathy and grim economic situation, they join the Mafia gangs and choose antisocial and violent path as the only alternative.

Since independence, education has been deemed to be an unproductive item. Education has not been given any priority in the country's financial moorings. Specially in Uttar Pradesh, education has been quite neglected and the budget amount allocated to education has been reduced. During the State Vice-Chancellors' Conference at Lucknow we were informed that instead of Rs. 20 crores allocated to education last year, this year only 12 crores have been provided. Only a fraction of this amount would go to the college education.

The Maladies

Leaving the financial aspect, there have been numerous maladies from which the colleges of Uttar Pradesh are suffering :

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(1) Colleges are the affiliating wing of the university. In a residential university, the status of colleges is taken to be secondary. They have been continuously given step-motherly treatment. In the Gorakhpur University, a brilliant teacher who is employed in a college and is unfortunately not serving in the university, is not allowed to guide research and be an independent supervisor. This discrimination makes him frustrated and inactive in his field of study.

(2) Some colleges are suffering on account of abnormal relations existing between the Principal and the Management. On frivolous grounds the Principals are made victims of the wrath of the Management. The clash probably starts on issues of financial operation. The Managers often do interfere in the day-to-day administration. The Vice-Chancellor's job then becomes to act as a Judge, revoke the suspension of the Principal and then start the melodrama of legal hearing of the case. Whichever party loses, it straight proceeds to the Hon'ble High Court. The whole process indefinitely lingers on and the students have to actually suffer.

(3) In Uttar Pradesh there are only a few constituent colleges where the problem is mainly of party politics and of internal bickerings. The professional colleges like Medical Colleges and Engineering Colleges are mainly governed by the State and have their own mechanism. In a sense they are causing heavy financial burden upon the university.

(4) Surprisingly the colleges situated in rural regions do not have the faculty of agriculture and they are not functioning to cater to the regional needs. They just function as colleges with traditional subjects in the Faculty of Arts, Humanities and Social Sciences. The functioning and management of these colleges cannot be described as satisfactory.

(5) Colleges, in fact, are the tender cradle of higher education because a large mass of our students join these institutions for reasons more than one. The majority of the students belong to the poor strata of society. They cannot afford to spend more and bear the expenses of hostel, etc. They seek admission in the local institutions where their parents are residing. If there is no provision of a college in the local area, they join the nearest college and do daily up and down in a bus or train. Another reason for their joining these suburb

colleges has been that they are involved in agriculture and business. The enrolment in the local colleges provides them with an opportunity to pursue their study as well as to enable them to fulfil their family obligations by assisting their parents in the family profession.

(6) Colleges today, are lacking in their foremost task of preparing the students for pursuing higher learning of specialized nature or to enable them to be fit for the job market. In the eastern part of Uttar Pradesh, the students of the colleges and university indulge in party politics. They have adopted as their models, either Sri Bir Bahadur Singh or Sri Kalp Nath Rai and other MLAs and ministers who prominently came up to heights from their student life as President or Secretary of the Students' Union. The glamour and grandeur of politics enamours them and they begin to function in the same style as that of a politician.

(7) Some of the college students are indeed deserving and they devote time in studies. The political disturbances hamper the smooth functioning of colleges and universities. The teacher-politics often comes in the way of smooth functioning of the colleges though the UGC and the State Governments have given better grades to teachers. But there is no mechanism to assess the work of the teachers in colleges or the university. The teachers resist keeping and submitting their monthly diary to the Principal or the Vice-Chancellor for perusal or remarks. In some colleges, the teachers do not sign attendance registers. They outright reject to follow the Teachers' Code of Conduct or to submit the self-assessment proforma devised by the UGC. All these they deem to be an encroachment and insult.

(8) The students of the colleges often qualify in the professional and competitive examinations. They devote time and make personal efforts. But the present politics-ridden environment of the colleges hardly provides any scope for them to qualify in these competitions. It is all due to their personal efforts. Majority of the students come out of the colleges either to join the postgraduation and research in the university. They do add to the mass of unemployed youth in India. The college education does not provide them any job avenue. It does not enable them either to think of their own or to innovate and perform new and useful acts. They are actually aimless and have no guidance to improve the quality of life even when they get enrolled in the university.

(9) In the colleges of Uttar Pradesh, various malpractices are prevalent in the examination system. The problem of mass copying and indulgence in violent activities when they are checked have become very common. The Gorakhpur University teachers made tireless efforts to stop this evil practice by reducing thirty per cent marks attained by the students indulging in mass copying. This was vehemently opposed and people even

went to Hon'ble high court. But eventually the practice of mass copying has been considerably stopped.

(10) The syllabus of the colleges also need revision. The syllabus for three years' degree course has not been scientifically framed though the system is adopted. I have no hesitation to inform UGC that in no colleges or universities of U.P., the course contents of the three years' degree course has been properly envisaged and drafted. At some places, they have just introduced the M.A.I courses in B.A.III. In fact a rethinking to revitalise the courses in true spirit is urgently required. The entire concept of foundation, core, (Major-Minor) and Applied courses have still to be materialized and the syllabi updated. With properly framed T.D.C. course the colleges are sure to develop into real centres of knowledge and virtue.

(11) The State Government of U.P. should provide additional number of teachers for the additional work due to the introduction of the three years' course. The teachers should join refresher courses and be armed with modern trends and techniques in their respective subjects. They must tear off their old notes and devote time and energy to daily study their subject and make themselves up-to-date before facing their students. Students are the best judge of a teacher. The teacher should not forget this truth as long as he is in the profession of a teacher and has to deal with them.

(12) The UGC must lay pressure on the State Government to fill up the vacancies of teachers in the Colleges and grant them the Plan posts (VI & VII) which are often now pending with them. The State Government should also provide additional teachers for additional work on account of the introduction of T.D.C.

Suggestions for Improvement

(1) Colleges must not act merely as centres to produce ritualistic administrators and lackadaisical clerks. It must unveil the innate talent and virtue of the students.

(2) College education must be intended for the individual benefit of the students as well as for the welfare of society at large.

(3) It should make the best use of the creativity latent in the adolescents. Through its course contents, it should develop the students to be better human beings having practical wisdom and comprehension. The students should come out from the colleges equipped with an awareness of their civil responsibilities and be ideal citizens of free India. They should contribute to the total development of the society and the nation and be patriotic and dedicated.

(4) The Kothari Commission Report correctly emphasized the social purpose of education and the need to use it as a tool for the realization and fulfilment of

national challenges. The concept that higher education is just a "luxury for a privileged few" should no more grow and the college education must directly serve the developmental needs of the region and the nation.

(5) The college education would become more relevant if original and useful projects are undertaken to provide direct benefit to the community and the locality. The education provided in colleges should not be cut off from the hard realities of life. The NSS and other beneficial schemes should be more effectively introduced and participation therein must be compulsory. The students would then spontaneously emerge as the agencies of meaningful social change.

(6) The quantitative growth of stereotyped colleges must be checked and prohibited. Increase in the enrolment does not mean or indicate progress. Development means change for the betterment and a qualitative change and progress. In Uttar Pradesh universities and colleges have largely multiplied. The massive growth in rural and urban colleges have brought little gain to people. Instead of increasing the number, some basic structural changes must be introduced to make them useful.

(7) A restructuring of the courses for the colleges based upon the regional needs as well as improving the quality of the college education would certainly solve the problem. We will then not produce just degree holders but qualified, sober and conscious graduates who would be assets to the country. They would essentially enrich the national mainstream and foster integration.

(8) A broad based review of the entire panorama of college education has become necessary. Inter-collegiate Board should be established. It should evolve and work its own system of administration, management and examination quite separate from the university. It should work for scientifically drafting a region-based useful syllabus to lead the youth on the right creative path.

(9) Excursions and educational tours must be made compulsory for the undergraduate students. After the conduct of the tour, they should submit a diary and a project report. Tours and excursions will make them more confident and self reliant as well as would foster the spirit of integration and unity.

(10) The assessment design of all the colleges in a State should be uniform—at least of such colleges as have a common course content. Internal assessment must be made compulsory.

(11) The applied courses which have been introduced in the third year of the T.D.C course must be so

devised as to ensure some job avenues to the graduates who pass out of the college.

(12) College education must be improved in a manner so as to bring about a qualitative change in the character and personality of the graduates. It would save the young mind from deviation to a wrong track as well as prevent the loss of national talent and manpower.

(13) I take this opportunity to say a few words about some prominent colleges of Uttar Pradesh. Founded in 1823, Agra College has been an eminent centre of higher learning. There was a time when its teachers were paid much more than the university teachers. But today, it has been reduced to the status of an ordinary college. It should be merged as a constituent college of Agra University like Meerut College and D.S.B. College, Nainital. It would improve the shape and dimension of Agra University. Besides the denominational colleges like St. John's College, Agra, St. Andrew's College, Gorakhpur, Christ Church College and some others should be provided autonomous status and position. They would then be free to develop in a better shape and serve the cause of higher learning in their own distinctive style. The R.B.S. College, Agra, and some other colleges of its stature should be converted into deemed agricultural universities for they possess all the necessary paraphernalia for it. It would also facilitate and smoothen the work of administration and management and promote useful research.

(14) Such colleges as have undertaken the teachers training programme should be separated from the university and a separate Board be formed for them. Medical and Engineering colleges should also be separated from the university. The Hon'ble Central Health Minister has recently announced a separate Grants Commission to be set up for the medical colleges. Independent status for engineering colleges have been attracting the attention of the Government for long.

15) Agriculture colleges can be organized under Uttar Pradesh Agricultural University Board.

The portrait of college education in U.P. may appear to be dark and dismal, yet we must not lose courage. We must be prepared to introduce drastic changes in the entire system of college education. With a little effort on our part and with some more concern on the part of the UGC and the State Government, the situation will definitely improve. Improvement will come with a firm determination on our part and college education would then lead the nation towards a bright future. The graduates passing out from there will not then be aimless youths but the most useful agency of positive social change and progress.

Economics Teaching and Research

Economics — now regarded as the queen among social sciences — has been undergoing tremendous changes. It is becoming an increasingly important element of public and political philosophies and policies. But how is this prestigious subject taught by our teachers in colleges and universities? Dr Har Swarup Singh, Lieutenant-Governor, Pondicherry and former Member, Planning Commission and Vice-Chancellor, Haryana Agricultural University, focussed on this question in a special lecture delivered by him at the Academic Staff College of Pondicherry University recently as part of the Refresher Courses in Economics for faculty members from universities/colleges of South India. Dr. Singh shared his thoughts on such questions as, "What is the state of economics research carried out in our institutions in the country today? Are the approaches and content relevant, and are they of a problem solving nature? Do they help policy making in the country? These are obviously the issues which should engage the attention of every serious teacher and researcher in economics." We are pleased to carry excerpts of this lecture for the benefit of our readers.

As an economist and as an observer of academic activities in our discipline carried out in our universities and colleges, I have a feeling that the existing system of economics teaching and research leaves much to be desired. Frankly, it calls for radical restructuring. You may recall that when we introduced teaching of economics in Indian universities after Independence, we simply emulated the model of Britain, which by that time had moved over from 'political economy' to 'economics'. The study of economics was considered a part of the training of a civil servant and, therefore, it was taught traditionally, along with political science, history, philosophy and law. The aim of teaching economics was not to turnout professional economists but to impart limited, and often fragmentary, knowledge in economic theories. However, this pattern has greatly altered in recent years and today economics is regarded as a sovereign discipline and, with the

help of mathematics, statistics and econometrics, its status has come upto the level of a science, even if not very exact. The need for making the teaching of economics more relevant, empirical and problem-solving has been frequently emphasised by various universities in recent times. However, despite all these momentous and welcome changes, the teaching of economics continues to suffer from several infirmities and deficiencies which inhibit qualitative improvements and limit the availability of well trained economics teachers, analysts and policy makers. This continued unsatisfactory state of affairs has been caused by number of factors.

At the outset, I must say that the purpose of the first degree in economics is not clearly defined or understood. Whether it is meant to train the students as economists or simply to enable them to get a job is not clearly spelt out. Normally, the university degree should train a per-

son in his chosen area and to make him a specialist. But, unfortunately, in the case of economics (as in many other social science and arts subjects), the course structure is not designed to train economists just as doctors or engineers are trained. While we would accept a university medical graduate as a doctor, or a university graduate in technology as an engineer, or a law graduate as a lawyer, many would have reservations about accepting a graduate or postgraduate in economics as a professional economist. This is mainly because teaching of economics at the university level in India does not promote very well the qualities required of an economist. A three-year degree, followed by the two-year postgraduate degree, does not add up to an integrated study or training required for a good economist. We have to consider urgently ways and means to promote scientific training of economists so that the nation benefits from their expertise.

Professional training of economists and the academic study of economics have been rapidly diversified in India, particularly with the increasing application of mathematics, statistical inference and operations research, for a better understanding and solution of economic problems. Yet, in most institutions the curriculum is not suitably modified and not updated often enough. Thus, how many Economics Departments have added to the curricula subjects like District Level Planning and Agro-climatic Regional Planning, concepts and effectiveness of development and employment programmes such as the Jawahar Rozar Yojana? To effect economic changes in India, one has to understand fully the socio-cultural issues but training in the required related disciplines is either not provided or

is attempted only feebly.

With increased use of quantitative methods and problem-solving approaches, the specialised institutes doing research in economics/development/public policies have gone significantly ahead of the economics departments of universities which are busy teaching economic theories and models of imported variety without relating them to the emerging socio-economic realities within the country. Consequently, the hiatus between the theoretical approach of the universities and the policy orientation of specialised institutions is growing. Within the university system itself, there has been a widening of difference in the standards of teaching between general degree colleges and the universities. Among the universities, some are way ahead of the others in terms of teaching and research in economics, as a result of which their graduates fare better in all walks of life. Such institutions include, among others, Delhi School of Economics, Jawaharlal Nehru University and Gokhale Institute of Economics and Politics. This dualism appears to be more pronounced between Central Universities and State Universities.

Of late, the relevance of teaching of economics at the university level to the job requirements is being increasingly questioned. There is a big gap between the type of manpower needed and supplied. This results in colossal unemployment of economics graduates which is an economic waste. What we teach in the classroom appears to be vastly different from what goes on in the frontier areas of research and, in fact, there is a growing lag between developments in research and in classroom teaching in India. For example, the findings of recent contributions to economics literature

published in the top journals are generally not conveyed, or conveyed inadequately and improperly, to the students at the university level. Where students are taught in the right fashion, there is always a big time lag. You will permit me to say that in many cases the teachers themselves are not familiar with the latest contributions, either due to limited library facilities or due to lack of sufficient interest or incentives.

One of the most disquieting aspects of our economics education is its noticeable passivity or intellectual non-involvement. Both at the undergraduate and postgraduate levels we deliver excellent lectures on celebrated theories and the students are expected only to remember such expositions and reproduce them in the examination paper. Seldom is a student expected to recognise or to formulate a problem concerning economic issues and to know whether he can use in the analysis of a fresh problem a theory he has crammed well. In other words, students are not trained to confront a practical problem. Our students can even get a good first class degree relying solely on half a dozen market textbooks. This poses the problem of discontinuity—a gulf—when a student takes up research work. Being ill-equipped, he often converts his research into a process of compilation, adopting a descriptive rather than analytical approach. Hence, the remedy would lie in making our economics learning an active and existential process from the lowest level, whereby the students get training in recognising problems, conducting independent enquiries, and prescribing solutions based on an analysis of all implications.

Another important factor responsible for the growing irrelevance of training in economics is

the predominance of Western economic theories and policies in the curriculum. A good part of the economic theory and policy taught is not directly relevant to the Indian economy and its emerging problems. Most of the theories originally developed on the Western models do not easily lend themselves to application in the special situation in India. The teachers use textbooks which many times do not originate in India and do not reflect—or only reflect inadequately—Indian concerns and realities. Further, we try to catch up with the West as a result of which we introduce our students to a level of particular theorising for which the undergraduate training rarely makes them well prepared. Given the time constraints within which teaching has to be completed, the end product inevitably is far from the ideal. This kind of a dualism between theory and its applicability perhaps exists, to varying extent, in most social science disciplines.

Increasing specialisation is also a factor hindering a bit the teaching of economics. While specialisation is essential for the growth of the discipline, too much of specialisation to the relative neglect of core areas produces compartmentalised thinking and research. Besides, as I said earlier, the way we teach economics in the classroom does not promote proper perspective and understanding on the part of the students. The political and socio-cultural context of economic problems and the socio-political consequences of economic policies, including particularly the equity/welfare implications, are not studied or taught in an integrated fashion. Obviously, studying economic problems in isolation is not adding either to the understanding of these problems or their resolution.

Turning to the state of economics

research in India, I cannot but have an inescapable feeling of disappointment because our research results have not been commensurate with the investment or with the expectations of society. During the past few decades, the number of research institutes and departments have grown, the research scholars receiving Ph.D. and M.Phil. degrees have multiplied, the methodology of economic research has been updated and methods of data collection, storage/retrieval, analysis and interpretation have improved. But the quality of research has been sacrificed in our quest for producing more Doctorate and M.Phil. holders. We also seem to have a mania for publishing; the number of papers published, the quantity gets priority over quality. There has been considerably duplication, overlapping and repetition of research efforts in different institutes and university departments. Actually, there has been rapid proliferation of research in some concentrated areas which often indicates mere waste of energy, time and resources. Also, the process of undue imposition from above and rigidities in our academic system have at times destroyed the spontaneity, creativity and originality, which are the hall-marks of good research.

Consequently, mediocrity characterises most of our empirical and theoretical research in economics. The correspondence between research conclusions and policy making is generally lacking. Oftentimes, policy formulation is hindered by the fact that consensus on the part of economists regarding key issues is not forthcoming. This is true of economists not only in India but elsewhere as well, the difference being one of degree. Thus, Cambridge Economist Joan Robin-

son in her "Economic Philosophy" has called economics a scrappy, uncertain, ill-disciplined subject. In India, unanimity on the part of economics researchers on any particular problem explored would indeed be a rare phenomenon! This, along with other factors, has considerably impeded the development of policy research and its application in the country, as a result of which many of the grave problems—like poverty, unemployment, rising prices, balance of payments crisis, rural-urban dichotomy, disparities in economic growth and welfare, and deteriorating environment—continue in menacing proportions.

Obviously, our preoccupation with theoretical or fundamental and routine research has not borne fruit. A vast body of literature has been produced which has become largely irrelevant to the emerging needs of society. We tend to forget that economic research is normally grounded in a given situation, in a set of specific realities. In our particular circumstances, economic research must largely be oriented towards practical application and, of course, should be of a multi-dimensional and interdisciplinary character.

I have personally felt over the years that there is lack of good qualitative and quantitative information—especially the latter—on which policy prescriptions can be based. Inadequacies and deficiencies of data has indeed been the bane of good policy making in the country. Where information is available, different organisations provide conflicting data—and/or data based on non-comparable methodology, definitions or time periods—on any particular issue. It is here that the researcher will have to pay greater attention than done hitherto, to the development of sur-

vey techniques and methods of data collection, compilation and interpretation—and to the utilisation of secondary data—suited to research requirements. The researcher must assist in the collection and documentation of data, past and current.

In the field of agricultural economics, I have had difficulty in analysing the situation and developing a proper understanding of the various facets of some important issues because of lack of good information, e.g., on the optimum economic size of agricultural holdings, returns from agricultural mechanisation and its desirability for certain operations and geographic areas. To illustrate the difficulties faced by researchers and planners, at a recent Seminar on Agricultural Price Policy (on the issues referred by the Central Agriculture Ministry to the Indian Society of Agricultural Economics, for careful and professional deliberation) we were left groping for answers in some important areas, e.g., the amount of time devoted by the Head of the family (or others) to management/entrepreneurial functions and the value to be put on it, in order to calculate properly the cost of agricultural production. Hence, some arbitrary figures and assumptions will find acceptance. I also feel that the main reason for paucity of good, usable information is rather the lack of an analytical approach and not so much the paucity of resources. We have a large number of universities and institutes which have been adequately funded but have not produced the desired result in relation to the resources spent. One such research set-up, for instance, on which the Agriculture Ministry has spent considerable sums of money over the years is the Agro-Economic Research Centres under the Directorate of Economics and Statistics. As a Member of the Planning Commis-

sion, I was dissatisfied with their overall output although some individual centres have done good work. We wanted to evaluate their performance but the tenure of that particular Planning Commission ended around the time I wanted to launch an evaluation exercise. Perhaps the new Planning Commission and the Agriculture Ministry could make a preliminary examination of the matter first, before accepting my suggestion to initiate a formal evaluation exercise by one or more experts. The working of the Centres, research topics, coverage and the general thrust of studies all need careful assessment.

It would be seen from the above that the state of teaching and research in economics in India offers a lot of scope for improvement and teachers like you have a great role to play in promoting the growth of the subject, its proper understanding and relevance. While the examina-

tion system, the course structure and content, and infrastructure facilities, etc., are important, the teacher of economics is more important and his role really crucial in promoting the healthy growth of the discipline and its social utility. The quality of teachers of economics that we need to develop was very well summarised by Keynes in his biographical essay on Alfred Marshall. The teacher of economics, according to Keynes, must be a master economist possessing rare combination of gifts; to quote : "He must reach a high standard in several different directions and must combine talents not often found together. He must be mathematician, historian, statesman, philosopher—in some degree.

He must understand symbols and speak in words. He must contemplate the particular in terms of the general, and touch abstract and

concrete in the same flight of thought. He must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must be entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near the earth as a politician."

Researchers in economics must now show a new path and adopt a better approach. Economic research should be redefined in terms of its purpose and its responsibility. Instead of taking only a positive attitude of explaining economic behaviour, economic research should largely concern itself with suggestions for solving societal problems; normative considerations should certainly command increased attention. Research for sustainable development should be a key goal.

UNIVERSITY NEWS

will bring out a **Special Number** to commemorate the

10th New Delhi World Book Fair

being organised by the National Book Trust, India on
1-9 February, 1992. The theme of the **Special Number** will be

THE LITERATURE OF OUR TIME

The term literature has been taken in its true sense to mean literature of all subjects and all languages. Readers are invited to contribute to the **Special Number**. They may concentrate on a particular title they happened to read in the recent past that they really enjoyed and would like to share with other readers the thrill, the ecstasy they experienced. In the alternative, they may even pick up a particular author who fascinates them or inspires them. Or, they could also take a wider canvas and examine the books published during the last decade to pick up the trends of development in their subject.

Join in this voyage of discovery to find out if books are really the faithful mirror of society — the purveyors of our culture and an index of our aspirations, growth, and our trust in the future. Your contributions should reach us latest by 20th December, 1991.

New Courses from IGNOU

The Indira Gandhi National Open University (IGNOU) proposes to start B.Tech (water resource management) refresher courses for science and technology, and B.Sc (nursing) courses under the distant education programme besides introducing the human environment as an additional subject upto graduation level from 1993 session. This was revealed by Prof. V. C. Kulandai Swamy, Vice-Chancellor recently in Shimla. He said the basic objective of the university was to democratise the higher education and make it available to all sections of the society through the use of modern communication technology. He said there was growing demand from people of Gulf countries and some other countries with sizeable number of people of Indian origin to convert the university into a multi-national open university, but the IGNOU would consider the demand only after consolidating the achievements made so far.

Prof. Kulandai Swamy said that besides expanding the coverage to the remote and tribal areas, the IGNOU had taken upon itself the responsibility to bring uniformity in education by coordinating the distant education programmes being run by the conventional universities. He said another important achievement of the university was that it started only those courses which improved the efficiency and knowledge without adding to the unemployment problem as most of the students enrolled by the university were already in service. The admission for various courses was through entrance examination on the basis of merit. The IGNOU was

preparing quality material through printed volumes, video-cassettes, assignments and by utilising the electronic media.

The Vice-Chancellor said an estimated 1.50 lakh students were enrolled under the vast network of 16 regional centres, 172 study centres, 250 coordinators and 6,500 counselors. The university had so far produced 710 titles of print volumes, 265 video and 350 audio cassettes and over seven lakh copies of printed instructional material. He said there were six centres of the university in the State and three more centres would be added shortly. With this all districts except the tribal districts of Kinnaur, Lahaul-Spiti, Una and Bilaspur would have a study centre of the IGNOU

PGI Annual Convocation

The Union Minister for Health and Family Welfare, Mr M.L. Fotedar, today hinted at setting up of a Commission on Medical Education on the pattern of the University Grants Commission. A high-powered committee has been constituted to examine the matter in its totality, he said while delivering XXI annual convocation address at the PGI in Chandigarh recently.

He said there was no single institution to take a holistic view of the manpower needs for health care for taking initiative to achieve national standards for the high excellence in medical education. Thus, to meet the national objectives the entire medical education required to be reoriented. It was in this context that a Commission on Medical

Education had been thought of.

A total of 302 candidates were awarded degrees and 41 presented with silver and bronze medals.

Mr Fotedar pointed out that he was "emotionally attached" with the PGI, which had attended to the patients cutting across all "regions and religions" and without distinction of domicile.

Since such institutions are what human minds working there make them, he hoped the PGI would not be found wanting in rendering health-care and education. Attainment of health is a "social goal" and not merely means "eradication of diseases". The doctors and research workers had overcome several killer diseases themselves.

It was because of the medical advances that "infant mortality rate has been reduced, expectancy of life at birth increased and diseases like malaria, leprosy and TB brought under control and dreaded diseases like small pox completely wiped out," he added.

He called upon the fresh doctors and others to make eradication of AIDS and promotion of family planning a mission of their life. Referring to the need for better and adequate medicare in rural and backward regions, Mr Fotedar said the same should be done with vigour.

The doctors had a great role to play in achieving the two national objectives: removing social injustice and economic inequality. He concluded by quoting from Bhagwat Gita: By helping alleviate human sufferings and by rendering a healing touch you will bring glory to your alma mater and radiate far and wide

the sparks of the mission it embodies.

Earlier, Dr. B.N.S. Walia, Director, PGI, in his welcome address listed the achievements of the faculty at the PGI, both in terms of medicare and research.

Second International ISKO Conference

The Second International ISKO Conference to be organised by International Society for Knowledge Organisation (ISKO), Frankfurt, FRG will be held in Madras on August 26-28, 1992. The Conference is being organised jointly by the Madras Library Association, Sarada Ranganathan Endowment for Library Science, and the University of Madras as part of the centenary celebrations, commemorating Dr. S.R. Ranganathan's contributions to library and information science and services and in particular to studies on the structure and organisation of knowledge to improve the performance of information systems.

The purpose of the conference is to provide a forum for scholars working in the field of knowledge organisation. Under overall theme, Cognitive Paradigms in Knowledge Organisation, the topics proposed to be discussed at the conference include — *Area I* : (i) Conceptual Models, (ii) Mathematical Models, (iii) Simulation Models, (iv) Models for Decision Support Systems, and (v) Models for Intelligent Knowledge Based Systems. *Area II* : Applications and case studies of models in the Organisation of Knowledge in particular areas: (i) Natural Sciences, (ii) Humanities, (iii) Social Sciences, (iv) Formal Sciences, and (v) Interdisciplinary Sciences.

Further details may be obtained from Mr. S.N. Kumar, Conference Secretariat, 5, Sivaganga Road, Madras-600 034.

IASC Silver Jubilee

The Indian Association for the Study of Conservation of Cultural Property (IASC) is celebrating its Silver Jubilee during 1991. To mark the occasion, a National Seminar on Conservation of Cultural Property of various types will be held at Lucknow from 25th to 27th November 1991. A Silver Jubilee Lecture will be instituted from this year and the first lecture on "Status of Conservation in India" will be delivered by Mr. O.P. Agrawal, Director-General, Indian Conservation Institute. Besides, in order to initiate a dialogue between the museologists, archaeologists, archivists, librarians, etc. on the one hand and the conservators on the other, a symposium with the theme "Conservation - Whose Responsibility?" will be held on 26th November.

From this year IASC has given a call to observe 'Conservation Week' from 21st to 26th October every year. During this week programmes will be held to highlight the importance of conservation; lectures will be organised to create awareness in the public; conservation laboratories will be kept open for the public to visit and see how conservation work is done.

WUS Invites Project Proposals

The Indian National Committee of World University Service invites project proposals from universities/institutes on any of the follow-

ing areas.

- (i) Community Development
- (ii) Scheduled Castes/Scheduled Tribes
- (iii) Refugees
- (iv) Women
- (v) Education, Scholarship and Training
- (vi) Academic Cooperation and Solidarity

The total budget of the project should not exceed Rs. 3 lakhs per annum.

Though all universities are eligible to apply, member universities shall be given priority. Funding application should be submitted through proper channel. Five sets of the project application should reach on or before 30th November 1991. Submitting a project does not necessarily guarantee funds.

Further details and prescribed Project Proposal Form may be had from the Executive Secretary, World University Service, R-579, New Rajinder Nagar, New Delhi - 110060

University Administrators Convention

Prof. G.M. Rajarshi, Registrar, University of Bombay, emphasised the need for officer-oriented administration in universities rather than the present system of committee-oriented administration. He was addressing the first convention of the Association of University Administrators, Maharashtra Chapter, held in Bombay recently.

The convention was inaugurated by the State Finance Minister, Mr Ramrao Adik, who congratulated

the Bombay University Officers' Association for taking the lead in hosting the convention. He added that as in the State of Kerala, the Maharashtra government had ambitious plans to achieve 100 percent literacy by the end of 1994 with the active cooperation of the universities and voluntary organisations.

Chetna Shivar-cum-Health Camp

A three day 'Chetna Shivar-cum-Health Camp' was recently organised at Naya Gaon (Mansurpur) by Women's Studies Cell, S.D. College, Muzaffarnagar in collaboration with Church's Auxiliary for Social Action, New Delhi. Naya Gaon has been adopted by the college for overall development with emphasis on women and children. Several IRDP facilities are being extended to the village. A regular Balwadi is run there with mid day meals to 0-6 age group children with compulsory attendance in the preprimary school also run by CASA, New Delhi. Health Camps are organised there to provide complete immunization to children, expectant mothers and girls below the age of 18 years. Booster doses are given to protect the children and other target groups from vaccine preventable diseases.

The topics discussed at the 'Shivar' were diarrhoea management, motherhood practices, nutrition to girls during adolescence, etc.

A sale-cum-exhibition of low cost readymade garments was also organised on the occasion. To strengthen the skills of women folk, a regular training in tailoring was also started.

News from Agricultural Universities

PAU Kisan Mela at Gurdaspur

Dr. Khem Singh Gill, Vice-Chancellor of the PAU recently inaugurated a one day Kisan Mela at the Regional Research Station, Gurdaspur. Addressing the farmers Dr. Gill said that since paddy was the major kharif crop of this area, the research work on the development of new high yielding and disease resistant varieties had been geared up. He said that two new rice varieties resistant to bacterial leaf blight disease and a new variety of basmati had been developed and their seed would be made available to the farmers next year. Similarly two new varieties of sugarcane resistant to red rot disease had been developed which were in the final stage of testing. Dr. Gill advised the farmers to judiciously use fertilizers and other farm inputs in view of the soaring prices. He cautioned them against the excessive use of insecticides which endangered human and animal life and also caused pollution. Dr. Gill informed that the plant health clinic and an animal care centre would be set up at the Regional Research Station, Gurdaspur. Dr. Gill said that a number of training courses for farmers and farm women were organized in the Krishi Vigyan Kendra of this station. More courses in vegetable seed production and flower cultivation would be organized. Dr. Gill advised the farmers to sow only those crop varieties which were recommended by the university for this area.

Dr. G.S. Gill, Director of Extension Education said that from this year more field demonstrations had been arranged to acquaint the farmers with the latest research of

the university. He urged the farmers to adopt auxiliary occupations like dairy farming, poultry farming, bee-keeping, etc. He advised them to cultivate a habit of reading farm literature to update their knowledge.

Mr. J.S. Sandhu, Deputy Commissioner, Gurdaspur, appreciated the PAU authorities for holding this Kisan Mela to educate the farmers in modern agriculture. While explaining certain facilities which were being provided to the farmers by the district administration, he advised the farmers to take up dairy farming in a big way since the Gurdaspur Milk Plant was facing shortage of milk.

More than 5000 farmers hailing from Gurdaspur, Amritsar and Hoshiarpur districts of Punjab attended the Kisan Mela at which they were apprised of the latest farm technology for maximizing their yield of crops, fruit and vegetable cultivation and care of farm animals.

New Papaya Varieties

The State Variety Approval Committee which met at the Punjab Agricultural University under the Chairmanship of Dr. L.S. Brar, Director of Horticulture, Punjab, approved two new varieties of Papaya namely Pusa Delicious and Pusa Dwarf for cultivation in Punjab.

Pusa Delicious is a hermaphrodite variety. It is high yielding early ripening with excellent taste and flavour. T.S.S. ranges from 9-10 percent. Fruit is medium to large in

size with round to oblong shape having thick flesh deep orange in colour. Average yield is 40-45 kg/plant.

Pusa Dwarf is delicious and dwarf variety. Plant attains height of 165 cm and starts bearing fruit at

100 cm from ground level. Fruits are small to medium, oval in shape orange coloured flesh having 8-9 percent T.S.S. This variety is suitable for high density planting, resistant to lodging by strong winds and fairly tolerant to cold. Average yield is 35 kg/plant.

News from UGC

Countrywide Classroom Programme

Between 18th November to 23rd November 1991 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

1.00 p.m. to 2.00 p.m.

18.11.91

"Remote Sensing - XIII : Orbits for Earth Observations - II"
"Bank Finance"
"Rajasthan Agriculture on Move - Food Grains"

19.11.91

"Ways of Thinking - SEP - II : Contours of Time"
"Organic Techniques - II"
"The Scanner"

20.11.91

"Lead Acid Battery - Testing and Evaluation"
"Never Transmission"

21.11.91

No Telecast

22.11.91

"Vedic Mathematics - II"
"Gender Bias in Medical Technology"
"Ethnicity and Democracy"

23.11.91

"Rabindra Sangeet - I"
"Handicrafts of Andhra Pradesh - Bangles and Banjara"
"Never Say Die"

IInd Transmission

4.00 p.m. to 5.00 p.m.

18.11.91

"Remote Sensing - VIII: Microwave Sensors"
"Japanese Development Pattern and Asian Countries"

19.11.91

"Preparation of Aluminum Chloride"
"Market Segmentation"
"Rabies : Containment and Prevention"

20.11.91

"History of Cloth - I"
"Four Decades of Indian Planning : Changes in Strategy"
"High Voltage Electron Microscopy"

21.11.91

No Telecast

22.11.91

"American Immortals : Henry Ford and His Horseless Carriage"
"Plasmid DNA Purification"
"Application of Plant Tissue Culture"

23.11.91

"Photoschool - III : Exposure"
"Luis Braille : A Monoacting by C.C. Mehta"

More Departments Under COSIST

The University Grants Commission will endeavour to ensure that at least 25 percent of the total number of departments in each discipline of science and technology in the universities as against present 16 to 18 percent are identified for support under Strengthening of Infrastructure in Science and Technology (COSIST) Scheme during the Eighth Plan. In this direction, particular attention will be given to identify more departments in Mathematics and Statistics as now the share of these disciplines in the coverage of the scheme is proportionately inadequate.

While the COSIST Scheme offers highly selective support to achieve excellence in teaching and research, efforts will be made to maintain regional balance also by identifying and assisting some viable departments particularly in less covered States to begin with under the Departmental Research Support (DRS).

The COSIST Scheme seeks to provide infrastructural support to such selected departments as have shown promise of excellent research output or imparting quality education with an ultimate goal of developing them to the level of their

best counterparts abroad. At present a total of 111 departments out of over 750 departments in

science and technology disciplines are being supported by the Commission under the scheme.

News from Abroad

Quality Ethos for Teaching in Higher Education

The Centre for Higher Education Studies of the Institute of Education, University of London, is conducting a major two year programme of research on "Identifying and Developing a Quality Ethos for Teaching in Higher Education". The research is being supported by the Leverhulme Trust.

The primary aim of the study is to advance understanding of quality in higher education teaching at undergraduate level, and how to enhance it, by a systematic analysis of previous research in Europe, North America and Australia, and by canvassing the views of large samples of students, employers, academics and administrators.

The study is based on the premise that quality management will be facilitated if there is a clear understanding of what different groups have in mind when they seek quality improvement.

The emphasis of the study will be on the distinction between quality as process, content and output and comparisons of perceptions of quality by managers, producers and consumers of higher education services.

The Study will have two phases. In the first an analysis of published material relating to teaching quality in higher education, and quality management more generally, will be undertaken. Internal studies from individual universities and polytechnics will be included where possible. This will be followed by a series of interviews and workshops with representative members of the following groups in order to elicit lists of

criteria and concepts that each group associates with teaching quality in higher education.

- 1) Heads of institutions;
- 2) Academic staff;
- 3) Senior administrative and management staff;
- 4) Students;
- 5) Governing Bodies of institutions;
- 6) Employers of graduates;

The team will also conduct a number of short case studies of institutions in Britain and the United States, where a total quality approach is being adopted.

There will be three main outcomes of this first phase of the study :

- (i) An analysis of the perceptions of quality by various stockholders and the main differences between them;
- (ii) Case study reports on institutions practising a total quality approach;
- (iii) A questionnaire for the second phase of the study.

In phase two, questionnaires will be administered to selected samples of 'stake holders', of whom it is anticipated about 2,000 will be students, 2,000 will be academic staff and about 1,100 will be administrators, representatives of governing bodies and graduate recruiters.

Respondents will be asked to indicate for a wide range of items :

- (a) the extent to which they agree that this is an important indicator of quality;

- (b) whether in their view the system and their own institutions are performing well in terms of the indicator;
- (c) specific quality improvements they would like to see.

Analysis of these results will reveal the extent of support for each item in terms of its desirability and the extent to which it is being met and it will also permit comparisons between categories of stake holder, type of institutions and main subject areas.

Apart from the intrinsic interest of the findings the main value of the study will be its contribution to knowledge of the issues involved in managing quality in higher education. If there is widespread agreement on the main quality issues and criteria, the management of quality is straightforward. If, as is more likely, there are significant differences, the analysis of these will help to identify the fundamental problems confronting managers who are concerned to improve the total quality ethos of their universities, polytechnics and colleges.

The Centre for Higher Education Studies is a self-financing research unit within the Institute of Education which undertakes research into most aspects of higher education policy, management, staff appraisal and development, teaching methods and course development. Recent major studies have included work on quality and accountability, funding mechanisms in higher education, business funding, overseas students, student financial support and the finance of private vocational education and training. The Centre runs an MA course on Higher and Further Education and a Diploma on Teaching and Course Development.

Further details may be had from Prof. Gareth Williams, Centre for Higher Education Studies, 59 Gordon Square, London, WC1H 0NT.

Excellent Workbook

S.C. Mathur*

Navanita Lahiri

R.K. Singh. Practising English in Science and Technology : Workbook. Bareilly, Prakash Book Depot, 1990. Pp. 206. Rs.35.00

Practising English in Science and Technology is a valuable book in the rapidly expanding field of indigenous material on E.L.T. Falling into the category of E.S.P. (English for Specific Purposes) and more precisely for science and technology, this book is aimed at students of tertiary or slightly advanced levels. It forms a package with *Using English in Science and Technology*, also by Dr. Singh (Prakash Book Depot, 1988) of which this is the workbook.

Being task based the book provides plenty of practice for skills improvement, especially writing and reading. However without an audio component the skills of listening and speaking are unfortunately missed out. Some tasks could have incorporated speaking by integrating the skills, but not enough emphasis has been paid to it. There is only one task in the chapter on note-making where the skills transfer is from listening to writing, through pair-work.

Keeping in view the basic requirement of the students, Dr. Singh has based all the chapters except the first one, on language functions with the aim of improving power of communication. Important academic functions, specifically related to science and technology are covered, such as graphical presentation of information, classification, and writ-

ing hypothesis, etc.

Practising English works in close conjunction with *Using English* and the very first sentence of the first chapter begins "Read Section 2:1 of *Using English* and remember." All the chapters of *Practising English* are based on chapters contained in Section-II of the course book. Only the thirteenth and last chapter on note-making covers Section-IV. Section-III on outlining, paraphrasing and summarizing is absorbed into this last chapter.

However, this is not to say that '*Practising English* cannot be used independently of *Using English*. Dr. Singh has very wisely started each chapter of the work-book with guidelines, recapitulated from the course book and presented here in point form. A brief perusal of these points are adequate help in doing the exercises that follow. However for a deeper understanding and better grasp of the subject, it is advisable, especially for students at the tertiary level, to go back to the former book and revise the explanatory chapters.

Each chapter of *Practising English* has twenty to twenty three exercises under a single rubric but further subdivided into smaller sections. The exercises are graded according to their level of difficulty. The first few tasks in each chapter are relatively simple, getting progressively more difficult until the final task is of quite an advanced level.

Though the chapters are divided

according to language functions, the tasks themselves are not communicative in nature. The standard rubric is essentially conventional, "Rewrite the following sentences/passages", "Change the following sentences into....." There are fill-in-the-blanks and reading comprehension exercises. The very few communicative tasks also border on the conventional such as sequencing and transfer of information from diagrams, tables, charts and vice-versa.

Answers to the exercises are provided at the end of the book and this greatly affects the purpose of the book; since it also aims at self-study. A student can set his own pace and move through the book on his own, no doubt, but a better method of self-check would have been to provide a key booklet. In that case the student would have the option of not using the key. Actually to give greater flexibility to the joint purpose of the two books in the package, a teacher's handbook would be ideal. This could not only provide ideas for further adaptation of the exercises but also give clues as to how to make the tasks classroom activities, including group and pair work. This would also cover the lacunae of neglecting listening and speaking skills. To round off these books as prescribed material in technical colleges/universities, the key may be combined with the teachers handbook.

However, as it exists, '*Practising English* is an excellent workbook for both teachers and students of English language as it is used for science & technology. Dr. Singh has tested out his materials on the students of Indian Institute of Mines at Dhanbad and has met with a favourable response. Going by this fact and the quality of the book, '*Practising English*' ought to be used at most technical colleges and universities.

* Professor of English, Deptt. of Humanities and Social Sciences, University of Roorkee, Roorkee-247667.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in the bibliography. Such universities as are not sending us regular information in respect of doctoral theses accepted and research scholars enrolled are welcome to make use of these columns.

The library also receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly the column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

HUMANITIES

Philosophy

1. Manorama. *Kashmir Shaiv darshan evam advait vedant mein advait ke avdharna ka tulnatmak vivechan*. BHU. Dr L N Sharma, Prof and Head, Department of Philosophy, Banaras Hindu University, Varanasi.

2. Ram Krishna Bhatt, V. *Navya prachya nyay padarth vimarsh*. BHU. Pt. Sudhanshu Shekhar Sharma.

3. Rana, Indra Kumar. *A study of the Dohakosa*. Delhi.

4. Richard, Ramesh P. *The dipolarity of the absolute in Whiteheadian Cosmology: A critical evaluation*. Delhi.

5. Shivachaitanya, Brahmachari. *Bhedadhikkara ka sameekshatmak adhyayan*. BHU. Dr Kripa Shankar.

6. Sinha, Arvind Kumar. *The possibility of life after death: A reflective and critical analysis of claim and counter claims*. Magadh.

7. Srivastava, Ratna. *Bharatiya darshan mein bhoutik-tatva ke parikalpana*. BHU. Dr K K Mishra, Reader, Department of Philosophy, Banaras Hindu University, Varanasi.

Fine Arts

1. Chavla, Vijay. *Mandala Jile ke Gond evam Baiga Adhvani*

kala mein prakriti ka roopankan. Indira Kala. Dr Jyoti Bhatt, 7 Charotar Society, Old Padra Road, Vadodara.

2. Goyal, Veena. *Shilpa shastra mein upalabdh ras nirupan ka vivechanmak adhyayan: Shilpa ras nirupan*. Indira Kala. Prof (Dr) Prem Lata Sharma, 'Amnaya', 209/1, Near Nandnagar, Karaundi, Varanasi.

3. Tiwari, Durga Nandan Prasad. *Osian ke mandiron ke brahmana deva pratimayen*. BHU. Dr (Mrs) Kamal Giri, Reader, Department of History of Art, Banaras Hindu University, Varanasi.

Music

1. Shankar, Sangeeta. *An Inquiry into the contribution of violin and violinists in Indian classical music*. BHU. Prof (Mrs) N Rajam, Department of Instrumental Music, Banaras Hindu University, Varanasi.

Language & Literature

1. Sugathan, R. *The development of dialectics from Kant to Hegel: A critical examination*. JNU. Prof (Miss) Suman Gupta.

English

1. Chamush, Chandradhar. *William Somerset Maugham: A study of his attitude to human life and situations as reflected in his major works of fiction*. Dibrugarh. Prof P Mahanta, Department of English, Dibrugarh University, Dibrugarh.

2. Guruprasad, D V. **The epistle in Indian writing in English.** Gulbarga. Dr G S Balrama Gupta, Chairman, Department of English, Gulbarga University, Gulbarga.

3. Hegde, Manjunath Gajanan. **Arun Joshi: A study in themes and technique.** Karnatak. Dr C V Venugopal, Reader, Department of Post Graduate Studies in English, Karnatak University, Dharwad.

4. Jain, Vinay Kumar. **Pronominal usage in English and Hindi: A sociolinguistics study.** H S Gour. Dr R S Pathak, Department of English, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

5. Salat, Mohmed Farook. **The Canadian novel: A search for identity.** Baroda.

6. Singh, Laisram Siddharaj. **Arthur Miller: Man and society in his plays.** BHU. Dr S R Jalote.

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Editor :
SUTINDER SINGH

Pathology of Higher Education

Mustufa Khan*

If circumstances can break the best of men, it should only make us more human. In the academic life of our nation the relevance of this undeniable necessary virtue is of visceral relevance. Many a bright youth with a university degree entering the teaching profession is waylaid by the procrustean system enduring in the institutes of higher learning. How does one go about it? Here is a case. Mr A was very enthusiastic in his studies. Scored B+ and won a job in a degree college. Married and begot children. Two years of teaching and confirmation opened up bizarre experiences. Prepared for every lecture thoroughly but was forced to dictate notes rather than deliver lectures. Expediency rather than intuition came to sway him from his chosen path. Then resolution and will power gave way to easy life. Connived with the surroundings at the ground realities rather than standing up to face the challenge. Time and tempo whirled away in the craze to finish the syllabus by a deadline that approached surreptitiously sooner than expected. Colleagues crowded the available space accommodation. Hunted some nook or corner and 'went through' the remaining syllabus. Dissatisfied due to sundry reasons not all of them heuristic, some students tentatively suggested him to coach them for an ulterior reason or promise. Growing economic burden and growing family lured him to resort to 'teaching' at home, his own or one of the students', for a consideration. Unwittingly lured to this new 'interest'. Prospects of a plot in a neighbouring-burgeoning area and a house of his own confirmed him to continue to nurture this 'interest'. Wife's facile satisfaction of the 'home practice' for a home of their own led to desire for a balance accruing in the bank. Visiting some of the residences of the affluent attending his 'home practice' he acquired new sights. Must have a much better bungalow than had first thought. Students leaving his 'home practice' joined enviable professional courses, but, of course, after paying very inflated donation. At least some of them. What about his own toddlers. Wisdom and calculation came to his aid. Must save for them to join the rat race. The mirage of saving target receding again and again. Several years of teaching made it possible to do the work without preparation. What a help at the difficult stage of laying down the plinth for the house! What happened by the time the slabs were put on the walls. Hush. The examinations were round the corner but lecturer B was very helpful. B is due to take up construction work himself in the next academic year. The desire to do additional reading: Not feasible for another year, or two more. One more year petering out with research and publication column of the portion completion report going blank. It became customary to put 'nil' in the column year after year. The head of the institute was himself so inured that research and publication column ceased to play the siren music. Yes, indeed, for a 'thoughtful' coexistence. Even the instinct for research and publication is atrophied. A stray thought for it is the mysterious stranger or even the UFO or Haley's comet. Indeed so hardened became the settled life in the campus that the colleague, if any, quite opposite to all these would be the odd man out of the regular so called 'academic life' of a college or even a university. How did this sorry state of affairs become the very norm of most of us, junior or senior, in the institutes of higher education? What leadeth thy soul to this sorry pass?

(Contd. on page 13)

*Mahatma Gandhi Vidya Mandir's M. S. G. College,
Malegaon-423 203. (Maharashtra)

DISTANCE EDUCATION

Relevance of the Australian Model

V. S. Prasad*

Australia is one of the countries which launched distance education long before it became popular in many countries. It may be useful to examine the system of distance education in Australia and its relevance to the developing countries.

The Background

Australia is a continent with a vast landmass, (7,682,300 Square Kilometres) and a small population of around 16 million. It has a long history of distance education. Australia is a country of physical distances and distance education is appropriate to the situation. Earlier to reorganization of higher education in 1987, the term External Studies was used to describe what is today called distance education. The distance education was first started at school level, with the School of the Air. The school education programmes were mainly meant for the 'second generation learners', whose parents were immigrants located in widely dispersed places. The parents and community leaders were given a key role in the children's learning process. Later the programmes were extended to higher education which included general, technical and vocational courses. The Queensland College was the first to start distance education programmes in 1911. Before 1987, there were nearly 30 institutions providing distance education programmes. As a part of the reorganisation of higher education, the administrative arrangement of external studies programmes were reorganised. They identified eight 'principal providers' of distance education. Around 45,000 constituting 12 percent of the students in higher education are in the distance education stream. Most of these students are employed in service and industrial sectors. The female and male ratio has been changing. Fifteen years ago, the ratio was 25 and 75 percent. Now it is 54 and 46 percent.

The Australian System

Broadly, distance education institutions are categorised as single mode institutions and dual mode institutions. British Open University is the best example

of single mode institution. Australian distance education institutions are characterised as dual mode institutions or mixed mode institutions. In the dual mode institutions, the same institution offers on-campus and off-campus programmes. The same curricula is prescribed for both categories of students. The same evaluation pattern is followed. The degrees carry the same value as there is not even a mention in the degrees about the mode of education. The same teachers teach the on-campus and off-campus students. Every teacher plays a dual role, one of distance teacher and the other of conventional teacher. He gives lectures in the classroom and also prepares the material, print and audio-visual for distance learners. The convergence of the role of conventional and distance teacher in one person is a distinct feature of the Australian system. The convergence has two advantages; one, the equivalence of degree is automatically ensured; two, optimum utilisation of services of the academics. The identity crisis of distance teacher in single mode institution is also resolved. The division of work within the faculty is based on subject specialisation and not on 'method' specialisation. The instructional designers and producers provide services required by academics in the production and presentation of distance learning materials. Still the question of desirable academic requirements/skills of distance teacher and conventional teacher is not satisfactorily answered. The Australian model is characterised by the convergence of skills of distance teacher and of conventional teacher. It assumes that a teacher is conventional and distance streams requires certain skills with a difference in emphasis. One teacher requiring the skills of a drama actor and the other a cinema actor.

Mainly there are two objectives of distance education in Australia. They are: a) Extension of educational opportunities; and b) Upgradation of knowledge/skills. All types of programmes – general/liberal education programmes, science education programmes, technical and vocational programmes, research programmes are offered through distance education. The courses are more structured at lower levels than at higher levels. In recent years distance education programmes are also

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extensively used by industries to train their staff. Specialised institutions prepare learning materials in multi-media and deliver them at the industrial work places. Some of these programmes on Human Resources Development are very popular. There are efforts to make education more market oriented. Increasing emphasis is laid on vocational and technical courses to meet the market needs. Interestingly politicians are more enthusiastic about distance education than academics.

Multi-media is used in distance education in Australia. However, print is the main media in most of the courses. The audio cassettes are also extensively used in University of New England. The interactive radio programmes, interactive audio and video programmes, teleconferencing programmes, computer aided instruction are also used in the learning process. In Southern Queensland University College, telephone tutorials are also used. Attempts are being made to use modern technology in the learning process. But at present, their actual use is limited. New developments in printing technology are used to incorporate two way communications in printed materials. Because of the use of new printing technologies they are able to revise the courses every year. In printed material, the emphasis earlier was on content, and now it is on method. The use of the media depends very much on the social environment. Countries like Japan and Korea are extensively using electronic media. In these societies the spread of technology is very wide; it is said that in Japan many people have fax machines in their homes. In the selection of the media, there cannot be prescriptions, there can only be guidelines.

The student support services are mostly provided through the residential schools and individual communications. Because of distances very few institutions established study centres for student support services. Printed lessons, audio-video tapes are produced on study skills and are sent to student homes. Some universities are using telephone to provide study skills support. The small number of students enables them to provide most of the counselling services at home on the basis of individual needs. Self help groups of students are also encouraged.

Main Lessons of the Australian Experience for Developing Countries

(1) The need for distance education to meet the growing social and individual educational needs and also the need to create a learning society has been realised by academics and more so by politicians. The academics, in spite of their initial doubts, are getting

persuaded by the potential of the system. In view of the explosion of knowledge and changing social needs, distance education is capable of providing opportunities for life long education and training of the work force. In developing countries like India, distance education does have an important role in extending educational opportunities to larger sections of the community. In India we are also passing through the initial phase of hesitancy and doubts. One can anticipate that these doubts would get cleared in course of time.

(2) The Australian model is based on convergence of the conventional and the distance systems of education. Eventhough the desirability of convergence model at the level of structures requires further examination; at the level of methods and processes this model has many advantages. The advantages are: it reduces the conflict and competition between the two systems; ensures better utilisation of resources; enables cross mobility of persons between the systems and establishes equivalence or comparability between the products of the two systems.

(3) The Australian experience shows that the distance mode of education can be used for education of the learners of any age group. This could include children or adults and for any type of academic programmes. The only qualifying conditions to perform this function is the preparedness of the institution to adopt 'suitable' methods of instruction. In the case of children, the parents and the community should be prepared to play an active role and the learning materials may have to be suitably structured. In contrast in the case of adults and higher education, it may have to be more of learners' responsibility. The learning material can be more unstructured. In the cases of technical, vocational and science courses more hands-on experience may have to be incorporated in the learning process. Pedagogically, the Australian experience shows that all educational experiments and transmission of knowledge is possible through distance mode. For India it has many practical implications. In view of scepticism about the feasibility and desirability of vocational and technical courses being offered through distance education, Australian experience reassures the feasibility and desirability of the model. The only condition may be the willingness of the institutions to adopt suitable methods and preparedness of the learner to learn through this method.

(4) The relevance of the distance education programmes is another area engaging the attention of academics and politicians in Australia. Increasing emphasis is put on vocational and technical education. Efforts are made to give vocational orientation to even liberal educational programmes. The questions raised and discussed are very relevant to the Indian situation

also. The Australians are trying to find an answer to the question of relevance partly by designing the courses to meet the market needs and demands. In the recent years the priorities in Australian academic programmes, it is obvious, are greatly influenced by market forces. In the Indian social situation this approach may not be totally relevant as the market penetration is not as high as is the case in Australia. It is the social needs of deprived sections which should find an important place.

(5) Though there is increasing use of electronic media in distance education in Australia, the limitations of this media have been understood. Printed medium is still the primary media followed by audio cassettes. The Australian institutions are making commendable efforts to make their learning materials more interactive. Two way communication channels are provided in their printed, audio-visual and broadcast materials. Computers are also used for providing two way communication. In India also, whatever may be the media used, interactive process should be built into it.

(6) The student support services (SSS) have not received enough of importance in the Australian model. In recent years they have recognised this gap and emphasis is being laid on support services. A significant feature of the Australian student support services is the distinction made between the 'home based' and the 'study centre based' student support services. In designing SSS in the Indian context also the distinction of home based and study centre based services is very useful. Self help groups of distance learners are encouraged in Australia, which also can profitably be adopted in India. The support services have to be designed keeping in view the varied needs of distance learners, pedagogic requirements of the programmes and the institutional infrastructure.

(7) In the administration of distance education programmes, planning and monitoring are given a significant place. The forward planning of course development and course presentation are helpful in executing the programme efficiently. The industrialised nature of distance education operations require detailed planning particularly of the operations. Australian experience shows the critical role of planning in distance education. Monitoring as a mechanism for improving the quality of distance education is also emphasised in Australia. In India where not much significance is attached to forward planning in academic programmes, we can benefit from this experience.

(8) The Australian distance education is reorganised after 1987, mainly to avoid duplication of effort in distance education. They have rationalised the institutional structures and identified eight principal providers of distance education in the country. In the context of

proliferation of distance education providers in India, some of them operating on commercial lines, Australian model of rationalisation can be of some use. In the light of this experience in India also, viable distance education institutions may have to be created, without sacrificing the advantages of plurality, competition and experimentation.

(9) In the administration, more particularly in the maintenance of student records, computers are extensively used in Australia. It is of great help in maintaining the efficiency of the system. In the Indian context also in view of large number of students and varied uses of students' records, it is desirable to use modern technology for maintaining the student data.

(10) The innovative organisational structures and work culture in distance education centres of Australia need special mention. The informal human relations and respect for each individual within the organisations created conducive environment for the creative use of human potential in the institution. The programme orientation and the professional approach of the administrators and academics in Australian distance education institutions is very striking for a visitor from the third world countries. Some of these organisational norms and behaviour patterns are equally relevant to Indian distance education institutions.

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Performance Appraisal of Bombay University's New Foundation Course Paper-1 Case Study of a College

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Introduction

A two-paper Foundation Course (FC) scheme was introduced by the University of Bombay for the Arts-Science-Commerce students with the primary objective of acquainting them with the socio-economic life in India at the First Year (FY) and science and scientific method at the Second Year (SY) Degree level. However, right from its inception, the papers failed to take off for a variety of reasons, the most notable being the relevance of the course contents. The stereotyped syllabus remained static for years without any worthwhile revision. The FC became a "no man's" subject as there is no Department for FC in the colleges or a Board of Studies in the University, to take care of the subject. This explained the diminishing interest of the teaching staff who found no challenge in teaching the papers.

The lack of interest among the students was evident from the outset itself. It was felt that FC has no relevance for the Commerce and Science students as it was not connected in any meaningful way with their mainstream subjects, whereas the Arts students took FC for granted, as it was a pot pourri of what they had already read at the +2 level under various subject heads.

The FC syllabus came in for revision in May 1990 at which it received a total face lift. The new FC is envisaged to be far different from what it had previously been. The course content is such that it requires an altogether different approach to teaching and learning away from the traditional lecture method. It has shifted the focus of attention from the teacher to the students, necessitating the use of a multidimensional interactive method.

For the Arts-Commerce Faculties, the revised FC contains a section on current affairs, which provides for

a continuous process of automatic updating of syllabus from year to year. This ushered in a much needed built-in-dynamism in the curriculum.

The syllabus would expose the students to a wide spectrum of awareness at different levels and to various subjects ranging from political affairs, economic affairs, society, literature, sports, cultural and general academic aspects, among other things. This increases the general reading of the students in addition to making newspapers and periodicals a habit. It takes the students away from the framework of textbooks and regular study material to unconventional sources of information and knowledge. Such a change gears them to prepare for public, sometime nationwide, Quiz contests and competitive selection tests for professional courses or job at a later date. They are exposed to collecting data for themselves from the various media, rather than depending on tailor made material. Also, their analytical ability and inquisitiveness are expected to improve gradually.

Whereas current affairs forms a part of the curriculum for the Arts and Commerce students, it is replaced by communication skills for the science students. The section deals with reading and listening skills, writing of speeches, dialogues, reports, essays and letters to help the students to use language as a tool of day to day life and job situation. We felt that the revision of the syllabus is a welcome challenge, worth a try.

Case Study: Planning and Support System

The performance appraisal is that of the Kelkar Education Trust's V.G.Vaze College of Arts, Science and Commerce, established in 1984 and located at Mulund, a suburb of Bombay. Realizing the immense potential of adopting new educational technology, three teachers, all Heads of Departments, were deputed to attend the first orientation programme conducted by the University. Despite the short span of time, an innovative methodology was evolved and executed. To begin with, FC was attached to the Department of His-

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tory and its Head was designated as the Coordinator for administrative and academic accountability.

It was felt that the curriculum needed a multidimensional methodology of teaching – a sort of combination of lecture, interactive and project work methods with AV backup. The Foundation Faculty, consisting of about a dozen teachers, was drawn from all Arts-Science subjects, which provided a rich and multisubject resource pool.

Lectures were allotted on the basis of individual's subject proficiency. The regular lectures were supplemented by Question- Answer sessions. However, the dependence on the traditional lecture method was minimised.

One of the supplementary support systems thought of was the audio-visuals, which prompted us to train a team of teachers in AV teaching material production. The college management supported the venture by procuring a Video Camera with the help of which the project "Founding Foundation" was launched in July 1990. The introductory lecture in all classes was in the form of a 20 minutes short video film about the new FC, thereby arousing students and faculty interest. Subsequently, a series of films, approximately of 20 minutes each, including on Indian Classical Dances (40 minutes), Budget in India, Stress Management were produced by the Faculty team. Students were exposed to films and documentaries on various subjects procured from our own 400 cassettes strong Vaze-Vision library, Indira Gandhi National Open University sub-centre located in the college and the British Council Film Library.

Audio cassettes were used effectively in classrooms to deal with topics like Population, Poverty, and Pollution. Whereas the audio system could be carried to every classroom, the films were screened in the auditorium. The time-tables of classes were adjusted accordingly to facilitate combination of two divisions for joint viewing.

The Interactive Learning

The Interactive Method consisted of tutorial, preceptorial, group discussion, seminar and role playing. The tutorials were used greatly in dealing with the section on communication skill in the science faculty. It was noticed that the students responded very well when in small groups.

The preceptorial method adopted in the classroom included quiz and debates. A small group of students in each class was assigned the task of conducting quiz

on specific topics. The faculty guided the students from time to time in collecting the materials and organizing the quiz. A sports quiz was held covering the major events of 1990 like Italia-90, Wimbledon, Asian Games, MRF Boxing Championship.

Group discussions were a regular phenomenon in the classroom. The students were divided into groups of not more than 10 and allotted specific topics relating to political happenings, economic issues, sports, and current affairs. The discussion on the Narmada Project, supported by an issue of the *Business Plus* – audio-visual monthly cassette, was hotly participated.

The seminar method was not used in the formal sense, but was attempted in the form of class level paper presentations. Groups of students were given topics drawn from the syllabi to present papers of not more than 10 minutes duration. While the group divided the work among themselves, one of them was designated to act as the group leader for coordination and presentation. Such papers were later open for discussion. These papers are collected and kept in the library for future reference as and when felt necessary. Role playing was adopted for teaching subjects like inter-group conflicts. The teams were given mock situations to enact in the classroom.

A small beginning was also made in assigning project work to the students, who were to submit a report of the activities conducted by the college society that they had joined. For numerous reasons, the full potential of the project method could not be tapped during the year. It is possible to arrange field work and visits.

The unconventional methodology adopted for the new FC paper helped in increasing the interaction among students, teachers and between teachers and students. The impact was felt strongly in the Arts-Science classes where the student-teacher ratio is low as compared to the Commerce classes. The section that follows is a statistical appraisal of the students performance in the FC Paper-1 at the annual examinations conducted at the end of the First Year in March 1991.

Performance Appraisal

The present analysis of the performance of the students in the new Foundation Course Paper-1 relates to the First Year Degree Course in Arts, Science and Commerce. The questions asked at the year end examinations have been classified in terms of subjects coverage, point of origin, male-female and Arts-Commerce and Science Faculties. Two sets of questions were drawn, one for the Arts-Commerce and the other

for Science. The Arts-Commerce Question-Answer paper ran into 11 pages, against 4 pages of the Science Question paper. The main sources of information were classroom discussions, newspapers, periodicals, college wall- papers, notice boards and functions.

Sample and Universe

The total number of students who offered the new course at the F Y level stood at 673, made up of 150 Arts, 442 Commerce and 81 Science. It was decided to limit the sample size to 25 percent of the respective strength of each division in addition to following the proportionate sampling technique. There were 2 divisions of Arts, 4 of Commerce and 1 of Science, formed strictly on alphabetical order. The facultywise universe was divided into male/female and every 4th male-female student from each division was picked up to constitute the sample size. The sample is totally representative of the Universe in all respects and is given in Table-1

Question Paper

The Arts-Commerce question paper has been examined in detail leaving the BSc question paper for a separate note, being not strictly comparable. While the Arts-Commerce written examination carried 80 marks of objective questions, the BSc paper was made up of Communication Skill and General Knowledge. There were a total of 76 questions, with 53 for point answering and 23 for one to three sentence notes for the Arts-Commerce stream.

The questions were drawn from a wide range of subjects. The national and international political scene accounted for the maximum number of 18 questions, followed by aspects such as academic 13, general awareness 11, social 9, economic 8, sports 8, cultural 6, and literature 3, in that order.

Examination Results

The results of Arts-Commerce are presented in percentage terms in Table-2. The percentages represent Positive Response of the sample units. The average positive response for the sample as a whole works out to 43.8 percent with 45.2 for Arts and 43.3 for Commerce. It implies that out of a maximum possible 100 right answers, the average score is 43 for the sample unit. The Arts Faculty appears to have performed slightly better than the Commerce Faculty.

The male-female scoring is quite strange. While the Arts girls have done well in general, it was the boys who did remarkably better in the Commerce Faculty. The difference between the male students of Arts and Commerce is quite abnormal, which is equally true of female

students of these faculties. Whereas the Commerce boys have a score of 51.2 percent, which happens to be the highest for any group, the Arts boys reported the poorest score of 32.1 percent, the difference between the two being 19.1 percent points. This is also true of subjects such as literature, academic, social and culture in the arts faculty and economics, politics, sports and culture in the commerce faculty.

While arts students have performed better in cultural, political and sports fields, the commerce students have done so in economics, politics and sports. Subjectwise, the best performance is in Economic awareness, with 62.8 positive answers by the commerce boys, followed by 61.7 percent by the same group in political awareness. The lowest scoring is by the Arts boys at 15.6% in General Awareness, followed by 16.6% by the commerce girls in the same subject.

The Arts boys have performed below the overall college average in all subjects except Politics and the Commerce girls have suffered the same fate except in Economics and Politics. The best average is reported by Commerce boys followed by Arts girls.

The subject frequencies reveal the general reading habits of the students. They appear to be better exposed to economic, political and sports events in that order with general awareness, literature and academic awareness forming the bottom layers in that order. Economics has emerged as the better informed subject perhaps due to the exposure received at the + 2 and F Y Degree in Arts and Commerce faculties. Politics and sports have come up in view of the regular media – print and audiovisual - exposure. Together the three subjects accounted for 44.7 percent of the total number of questions.

Point of Origin

The questions could be classified on a mutually exclusive basis, in terms of point of origin as shown in Table-3. While 14.5% of the questions originated from the activities within the college, 30.3% were from within the country and the remaining 55.2% on world affairs. The students appear to be better informed of the national affairs, followed by international and college affairs in that order. There was not a single correct answer by Arts boys on world cultural awareness and literature. This is followed by world culture by Commerce girls at 8.6%.

General Awareness

The module on General Awareness (GA) needs a separate paragraph, as it gave us a jolt in terms of our

expectation of the students. There were 11 questions, one from the world arena and the remaining 10 about activities within the college itself. A single question that has been most profusely answered is the world GA question by the Commerce boys. For a block as a whole, the poorest performance is on GA about the college. This information is not available in the usual published form of newspapers, periodicals or AV sources. At the most, they are published by way of notices, college functions and the annual college magazine, which however, comes out only after the examinations are over. Students who have been keenly participating in extra and co-curricular activities alone could be aware of the names and events. Only one out of 8 girls in the Commerce Faculty and one out of 7 boys in the Arts Faculty reported correct answers. Some of the questions on the college which went largely unanswered included the following: (1) the name of the chief guest for the college annual day prize distribution; (2) the name of the joint programme organized by the Music and Dance Circle and the Debate-Elocution and Quiz Circle; and (3) the name of the college society which organized the lecture on Framework for Macroeconomic Planning by Dr Manohar Rao. On the other hand, questions like the name of the college society which organized the Greeting Card/Poster Exhibition-cum-sale in the college premises and the name of the most colourful activity of the Students Council, were profusely answered.

The results as revealed by the statistical analysis ought to have been better in view of additional efforts taken during the year than the previous years. It is compulsory for every student to be a member of at least three of over two dozen college societies. The FC students are allotted to different college societies on the basis of their choice. Yet the low statistics reveals that participation has been deceptive and notional. This point has already been brought out by our earlier studies of Bombay University colleges. Thus, an important aspect of higher education, personality development, appears to have been relegated to insignificance in Bombay colleges.

First Year BSc Results

The overall performance of the science students has been outstanding as can be seen from the data relating to the year end examination (Table-4). Though a little frustrated as they could not secure an admission to one of the professional courses, which most of them were aspiring, these students are found to be high profile and capable for good performance. The question is only of galvanizing their energy into activities which are interesting and enterprising. The new FC helped to reduce the frustration to some extent. The overall performance

on Objective Questions was outstanding in the Science stream, as 40.74 percent of the students scored Distinctions and First Classes against a mere 4.75 percent of the commerce students. The Science students were, however, found to be weak in Communication Skill.

Viva Voce

Out of 100 marks, 20 were earmarked for a viva voce which was conducted in March 1991 as part of the annual examinations. The students were assessed for their performance in the activities conducted in the class and by the college societies. The assessment was undertaken by a team of 2 or 3 teachers, depending on the class size and the viva marks appear to be broadly consistent with the marks scored at the annual written examinations.

Comparison between 1989-90 and 1990-91

While the 1989-90 question paper was common for all faculties, the 1990-91 is not strictly comparable between BSc and BA/BCom. Yet, an attempt is made here for a very limited purpose of an overview. A glance through the data reveals that there has been tremendous improvement in the Arts-Science faculties with a near status quo ante in the commerce faculty. The Table-4 is self explanatory. The most encouraging response stems from the FY BSc, where the First Classes and Distinctions made a quantum jump from a mere 3.37 percent to 40.74 percent. The proportion of students passing in "Pass" class sharply declined from 5 out of 10 to 1 out of 10. Only 3.70 percent students failed in the subject against 12.36 during last year. The paper appears to have substantially improved the enthusiasm of the BSc students. This is true to a great extent, of the Arts Faculty as well, where the percentage of failures declined from 44 percent to 25 percent and the First class and Distinction rose from 5.26 to 8.67 percent.

The BCom performance alone remained more or less stagnant. The first and second classes improved marginally from 31.70% to 36.88% and the failures rose slightly from 16.20 to 18.32%. For many years, we have been observing, albeit a priori, that girl students of the commerce faculty, have not been coming forward to participate in extra curricular activities like their counterparts from Art and Science streams. This could as well be true of all multifaculty colleges. Their general reading habit, particularly of newspapers and periodicals, is also found to be low. This point is borne out even from the subjectwise analyses presented in the previous section. It is well known that since Commerce classes get over by 10.15 a.m. in most of the city colleges, hardly anyone remains in the college for the main-

stream co-curricular activities, which happen to take place during day time. Though numerically the largest group, the commerce students are not found sufficiently in the college libraries and reading rooms, except on the eve of the annual examinations.

Conclusions

The findings are purely exploratory and are intended to be a feedback for improving the teaching learning process in the college. The credit for reviving student interest in the FC paper largely goes to the faculty members who have taken it as a challenge. Their efforts will bear fruits over a period of time. The specific conclusions that stem from the study are briefly listed below.

(a) The new course appears to have scored over the old, in terms of students and faculty interest.

(b) The paper has good potential for application of modern technology in teaching and learning.

(c) The average awareness of the students to the world outside the subject curriculum is low. This particularly is true of the commerce students.

(d) Exposure to GA, which was exclusively focussed on the college, is shockingly poor, indicating that happenings within the college are not seriously taken note of.

(e) Participation in activities of college societies intending to help personality development is notional. Only a handful of students effectively participate and are found to be in the forefront of all such activities.

(f) Participation in the class by way of open discussion is abysmally low particularly by girls in Commerce classes boys in the Arts classes.

(g) Public speaking is awfully bad due to poor vocabulary and practice. This limits the scope for interactive method of learning. We believe that the Science results would have been manifold better but for the problem of communication skill.

(h) Slowly, the inferiority complex and poor communication problems could be overcome through confidence building interactive and corrective devices within the classroom where those other than their peer group are not present.

(i) The paper has improved the student-student, teacher-teacher and student-teacher interaction. This could be made a focal point for resolving problems of campus indiscipline in the long run. Teachers also feel the need for keeping abreast with general happenings

in the college and outside.

(j) Poor interest in Commerce classes, numerically dominated by girls, make motivation a difficult task.

(k) There is no inter-division variation in the above conclusions within the same faculty, but inter-faculty variations are conspicuous. Equally dominant is the difference in the response rates of male-female. While the Arts girls have done better, it was the turn of boys in the commerce faculty.

(l) Students continue to be examination oriented rather than activity oriented. Subject-wise, Economic, Political and sports awareness were found to be better than others.

Suggestions

(a) Effective learning of the FC requires regular attendance in the class and participation in extra and co-curricular activities in the college.

(b) Colleges should subscribe to a larger number of newspapers and periodicals.

(c) Greater attention should be paid to general awareness at every level including at the college. Similarly, weaker segments (such as the Arts boys, Commerce girls, Communication skills of Science etc) could be considered for special attention.

(d) The teaching-learning material created during the year through interactions could be documented and kept in the library for reference.

(e) Teacher should be given freedom to choose general topics for examination, subject to notification at least two months in advance. This will enable inclusion of important happenings in the neighbourhood and the region.

(f) A Question Bank for objective tests be prepared which shall not be less than 4 times the questions to be drawn for the annual examination. Weightage for different subjects should not be highly uneven.

(g) Wider publicity for college activities through regular posters, wall papers, newsletters, etc. be given.

(h) Maintenance of journal for FC by students like that of the Science subjects, would help recording the participation which could then be used at the time of viva voce and for awarding internal marks.

(i) Inter-collegiate and inter-class competitions on FC topics could be conducted and prizes awarded.

(j) Useful topics such as interview techniques, en-

vironment etc. could be added either at the FY or at the SY level.

(k) Internal assessment should have greater weightage, like the postgraduate (60/40) scheme. (20 marks for activity group, 20 marks for class performance and 20 marks for viva could be considered.)

Limitations

(a) Being first time, there could have been communication gap between the faculty and students, particularly where absenteeism is more.

particularly where absenteeism is more.

(b) The study is purely exploratory and conclusions need not be final and universal, due to data limitations.

(c) The study was not preconceived prior to the examinations; hence limitation of time constraint.

(d) The question paper has its limitations particularly imbalance of coverage which we seek to improve.

The limitations are transitory and could be overcome over a period of time.

Table-1

Sample and Universe

	<i>Male</i>	<i>Female</i>	<i>Sample Total</i>	<i>Universe</i>
FYBA	07	30	37	150
FYBCom	38	70	108	442
FYBSc	05	16	21	81
Total	50	116	166	673

Table -2

Percentage Distribution of Correct Answers

<i>Rank Subject</i>	<i>FYBA</i>			<i>FYBCom</i>			<i>BA +</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>BCom</i>
1. Economics	25.0	51.3	46.3	62.8	49.3	54.0	52.1
2. Politics	54.0	53.9	53.9	61.7	45.4	51.1	51.8
3. Sports	42.8	52.5	50.7	55.9	39.5	45.2	46.6
4. Culture	40.5	58.3	54.9	53.1	38.3	43.5	46.4
5. Social	19.0	47.0	41.7	51.7	43.6	46.5	45.3
6. Academic	20.9	51.8	45.9	50.6	39.9	43.9	44.2
7. Literature	23.8	45.6	41.4	45.6	36.7	39.8	40.2
8. Gen.Awareness	15.6	25.8	23.8	22.7	16.6	18.8	20.1
TOTAL	32.1	48.2	45.2	51.2	38.9	43.3	43.8

M = Male, F = Female T = Total

Table-3

Question Numbers and Origin

	<i>College</i>	<i>Nation</i>	<i>World</i>	<i>Total</i>
1. Politics	—	3	15	18
2. Academic	1	1	11	13
3. Gen. Awareness	10	—	1	11
4. Social	—	3	6	9
5. Sports	—	2	6	8
6. Economics	—	7	1	8
7. Cultural	—	5	1	6
8. Literature	—	2	1	3
Total	11	23	42	76

Table-4

F C PAPER-I: A COMPARATIVE STUDY OF RESULT

	<i>FYBA</i>		<i>FYBCOM</i>		<i>FYBSC</i>	
	<i>1989-90</i>	<i>90-91</i>	<i>89-90</i>	<i>90-91</i>	<i>89-90</i>	<i>90-91</i>
Distinction	1.50	2.67	—	—	—	6.17
Ist Class	3.76	6.00	1.20	4.75	3.37	34.57
2nd Class	16.54	29.33	30.50	32.13	34.83	45.68
3rd Class	34.59	36.67	52.10	44.80	49.44	9.88
Fail	43.61	25.33	16.20	18.32	12.36	3.70
Total	100	100	100	100	100	100
No. of Students	133	150	315	442	89	81

Biomedical Informatics at the Cross Roads of Success

K.Sampatha Chary*

Today's research scholars require more information than ever before. The constant downpour of information bewilders all of us alike. The difficulty in searching the information from the secondary and tertiary sources is one of the constant problems being faced by the researchers. A scientist seeks primary information to know what other researchers in the same and allied fields have achieved or are presently working on as well as to know what is done in broader areas. Information scientists (Librarians) are drowning and floating on the tides of ever growing ocean of knowledge and information and are striving hard for the ways and means to help researchers in finding appropriate information. We are experiencing now in what might be called the "PUSH TECHNOLOGY" and its impact on every facet of information handling. The advent of digital computers, CD-ROMS, etc., and the advances in telecommunication and A V technologies have opened up new possibilities in dealing with problems arising from information deluge.

Collection of References

The main problem of the researchers is how to get hold of an article their library does not possess. For this purpose scientists can depend on "Current Contents" a weekly indexing journal from 'Institute of Scientific Information, Pa (USA). This is being published in seven sections covering almost the entire universe of knowledge. Since the journal gives forthcoming contents quite in advance, of not only new journals and serials but also of new books, scientists can take the advantage in knowing the new research that is going on and build up a core collection of reprints by sending reprint request cards to the fellow scientists. Current Contents on Diskette form will help in high speed searching, and automatically generate author reprint requests. If the scientists want any xerox copy of any article from the journals which their library does not possess, they can also write to various documentation centres in the country like NML, INSDOC, NICFOS, NIDCAP, British Library, TIFR, BARC, NIN etc. Various other major libraries in the country do supply xerox articles on advance payment, normally at the cost per page, ranging 50 paise to Re 1.00. INSDOC's Na-

tional Union Catalogue of Scientific Serials in India Vol. 1-4, 1988 (Rs 1200.00), gives holdings of 800 Indian libraries. The total coverage in this union catalogue is around 35,000 titles, out of which 18,000 titles are being currently received in Indian libraries. Since the directory of participating libraries is given in each volume, the librarian/scientist could know the source organization and get the desired issue on inter-library loan and request for the articles needed. British Council Libraries in the country and also Informatics (I) Pvt Ltd., Bangalore, can be contacted for obtaining the photocopies of any article on payment basis in a faster time.

Databases

Indian MEDLARS Centre (IMC) located at NIC (DoE), New Delhi-3 is providing medical literature searches, both retrospective and current. The librarians of the respective medical institutions can directly send their Medlars Search request forms to the Coordinator, Indian MEDLARS Centre. Off-line searches will be sent by the NIC to the respective indenter directly. MEDLINE, one of the world's largest medical databases is produced by the National Library of Medicine, located at Bethesda, USA. It is one of the most used medical databases covering approximately 3000 medical journals in 69 languages from all over the world. The IMC has also acquired the Population Information Database (POPLINE) developed by John Hopkins University, Population Information Programme and is contemplating to provide quarterly SDI to the biomedical scientists in the country. The centre also provides information from various other medical databases, such as CHEMBANK, CANCER Occupational Safety and Health (OSH) and other biomedical databases available on Compact Discs.

Sources of Print Materials

Index Medicus, Biological Abstracts, Current Contents, Science Citation Index, Cambridge Scientific Abstracts, CAB Abstracts, Chemical Abstracts FSTA, Excerpta Medica, CAS in Biological Sci (Pergamon INFO) and several other secondary and tertiary sources are very useful print literature coming to the rescue of the librarians/scientists. Garvey had predicted the time lag of 30 months in publishing an article in primary sources (i.e. periodicals), 4 to 5 years in secondary and tertiary periodicals. With the modern developments in

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print technology, the time lag has now been considerably reduced. Scientist is able to see 50% of his research reported for publication within 24 months, in primary periodicals and within 36 months in secondary periodicals. The desire of the scientist to inflate the bibliography of his own papers, is pushing up print media to increase number and size of journals.

CD-ROM Technology

With the advent of CD-ROM technology, now several databases can be conveniently owned by individual libraries instead of going in for on-line or depending on other sources. On just one side of a CD-ROM, information available on a mainframe sized database can be stored through Digital Optical Recording method, using a laser beam for both reading and writing, wherefrom we can have instantaneous access to the literature. Almost any researcher and certainly any research library can afford a Personal Computer (PC) and a compact disc player. Several databases like MEDLINE, BIOSIS, AGRICOLA, CAB etc now can be owned by the individual libraries to capture the world brain.

Several biomedical libraries are equipped in offering on-line retrieval services through DIALOG, BRS,

ORBIT, ESA-IRS, etc. However each search costs around Rs 500.00 to 1000.00. Informatics (I) Pvt Ltd., Bangalore, can also be of help in this matter. A scientist librarian can also go in for on-line with DIALOG and other hosts to search over 1000 global databases through a modem connected to a PC through the telephone lines under EASYNET programme as offered through Videsh Sanchar Nigam.

National Centre for Science Information (NCSI) set up at IISc, Bangalore, with the support of UGC is providing CAS's to scientists working in universities and other academic institutions covering physical and biological sciences. INFLIBNET proposed to be set up under UGC during the 8th plan- period will be of much benefit to the researchers all over the country. Major networks like EASYNET, NICNET, INDONET, RAILNET, PDN etc., are transforming the library and informatics scenario in the country and improving the research standards. A network of Regional Medical Libraries, Referral and Resource Informatic Libraries is in the vogue and once these are established all over the country any biomedical researcher can derive optimum facility. The time has come for libraries and information centres to help the researchers to their optimum satisfaction and benefit.

Pathology of Higher Education

(Contd. from page 1)

How ironic that this so called academic life has after all made us so human. But did we wish to be 'human' in this sense? No. Why no, then? Because the lecturer was given a decent salary that would take care of his human needs of meeting both the ends. It was much more than the hand to mouth existence which plagues most of our compatriots. To be human is to a man at existence level where primary needs occupy all our time and energy. But academic life is of rarefied heights. So there is actually a paradox: the circumstances conspire to bring down a youthful energetic lecturer, he becomes 'human'; and yet he is supposed not to be 'human.' And to be a monster is the worst. He would be veritably a monster all his professional life if he nurses a sense of injured merit. Carries it to the classroom, allows it to intrude in his teaching. That that also destroys domestic and conjugal bliss is left to the poor wife to gauge. Therefore, it is suggested that he should overcome this human-level existence. He should also prevent himself

from becoming a psychopath, a monster.

I think one should remember the youthful zealous days of making resolution of dedication for a truly academic life. One should always find enough sustenance there. If our memory has played truant in this regard one can still know it imaginatively. The desire for amelioration of our lot on the campus has always had roots in those seminal days. I have hardly met a colleague who did not share such a salubrious feeling. Notwithstanding this, most of us do go astray like most of the alarm clocks which kept right time but got their pace disturbed with the advance of time. The clock is there to show the right time as is the teacher on the campus to do the right work and teach in the right way. If the advance of time disturbs the clock so does the advance in experience in teaching to the teacher. Hence the need to overcome to human-level existence and engage oneself in self retrospection of what one set out to do and what one has done actually.



PRIME MINISTER

MESSAGE

The number of institutions imparting higher education in the country has grown rapidly over the years. While this has enabled higher education to come within the reach of youth living in different parts of the country, even in far-flung areas, the tremendous expansion which has taken place necessitates that we take more care than ever before to ensure that the education imparted by these institutions is of the requisite quality.

The Annual Conference of the Association of Indian Universities will, I hope, address itself to the crucial issue relating to the quality of education and make positive and implementable recommendations.

I wish the Conference all success.

[P.V. Narasimha Rao]

New Delhi
October 4, 1991

Our University System

A Self Appraisal

"We need to promote a deeper study of Gandhian Thought and its application in our society in a meaningful and significant way. We need to work for its scientific application in our social and national life. Mahatma Gandhi's legacy is not the legacy of a person. His influence on modern world thought is so profound that he continues to be a phenomenon rather than a page of History", observed Prof. Ramlal Parikh, Vice-Chancellor, Gujarat Vidyapith and President, Association of Indian Universities. He was delivering the Presidential Address at the 66th Annual Meeting of the Association. In a comprehensive exposition of our university system, Prof Parikh meticulously surveyed the higher education scene in the country. We are pleased to publish the excerpts from the Presidential Address for the benefit of our readers.

We are now in the last decade of the momentous 20th Century. The world has totally changed after the Second World War. We have not entered in a new era of post-cold-war period. This new era is a period of struggle between integration and fragmentation. Several waves of new ideas, new approaches and new thoughts have swept around us in the later half of the 20th Century. The rapidity with which these ideas have engulfed us is unprecedented. One wonders whether our curricular system has been able to respond to the new thought-winds that have been blowing around us, year by year, sometimes, even month by month. Our University System has hardly been able to cope with these sweeping ideas of recent decades, in terms of curricular-content or management structures.

The concept of education in the post-war world is no more limited to acquisition of degrees or skills. Its horizons have widened beyond our imagination. The University Education Commission headed by Dr Radhakrishnan, made a pointed

reference to the deeper goals of education by reminding us, how our ancient teachers taught subjects and imparted wisdom. It also quoted following verse of famous poet T. S. ELIOT:

*"Where is the wisdom that we
have lost in knowledge?"*

*"Where is the knowledge that
we have lost in information?"*

*"The cycles of heaven in
twenty centuries*

*"Bring us farther from God
and nearer to dust."*

The report stressed that education is both a training of minds and souls. It should give both knowledge and wisdom. Einstein's powerful plea that most important human endeavour is the striving for morality in our actions, is very pertinent in our quest for wisdom through knowledge. Several authors of the post-war world have deeply reflected on aims of education.

The process in India started with

Gurudeo Tagore's experiments in Shantiniketan and Vishva Bharti. Mahatma Gandhi's famous Wardha Scheme of 1937, described by Acharya Kripalani as "Latest Fad" was a landmark. Gandhiji later called it "Nai Talim" — "New Education" which he sought to be extended to University level also. An enlightened school of educational thought developed around him. This included Acharya Vinoba Bhave, Acharya Kripalani, Kaka Kalelkar, K.G. Mashruwala, Mr. & Mrs. Aryanayakam, Dr. Zakir Husain, Marjorie Sykes and several others who wrote extensively on education as an instrument of social reconstruction and on inter-linkages between education and productivity. It is most unfortunate that one of the most progressive schools of thought like this has received virtually no attention. These thoughts and experiments are of far-reaching importance in developing world-wide thought on purposes and ways of education. I am mentioning this because the prevalent University System somehow gives a right or wrong impression, about it being concerned on relating its work to any specific societal goals towards which it proposes to move. As a result it seems to have grown into a value-neutral or goal-neutral mechanism to produce degree-holders or diploma-holders for self-seeking careers. This impression has emerged despite some of the top-most centres of excellence and some of the most innovative institutions of global level, operating within our system. This impression can be dispelled by manifesting an inherent process of values and goals in all components of the system.

In this context, we need to promote a deeper study of Gandhian Thought and its application in our society in a meaningful and significant way. We need to

work for its scientific application in our social and national life. Mahatma Gandhi's legacy is not the legacy of a person. His influence on modern world thought is so profound that he continues to be a phenomenon rather than a page of History. His revolutionary ideas on education as a means of social transformation have not received significant attention in the system as such, barring few exceptions. This is not a question of studying somebody's personal thoughts. It is proposition for studying some of the ideas which the post-modern world is grappling with.

As back as 1909 Gopal Krishna Gokhale stated that Indian humanity reached its high watermark in Gandhi. In 1959 Martin Luther King who had never met Gandhiji during his life-time stated that Gandhiji's life, thought and actions are inspired by the vision of a humanity evolving towards a world of peace and harmony. Dr. Martin King further stated that Gandhiji could be ignored only at the risk of our own existence. These statements of some of our great thinkers and leaders clearly indicate how Gandhian ideas have become a part of legacy of humankind and how they are pertinent in emerging post-modern society.

Soon after our independence, Dr. Radhakrishnan Commission dwelled on the question of aims of education. Its stimulating discussion on this aspect of education are still refreshing. Creation of the UGC was the major outcome of this report. As a result of the recommendation of Mr. A.E.Morgan — its member, the National Council of Rural Higher Education was instituted. It is most regrettable that it was very hastily and unwisely wound up in sheer consideration of equivalence, instead of building an

alternative system of higher education for the rural society. Around 1956 on the recommendation of Mudaliar Commission on Secondary Education, multi-purpose schools were set up. This was a very important innovation which we lost after Kothari Commission, in our craze for rigid uniformity of school system. The multi-purpose high schools need to be revived. The 1966 report of Dr. Kothari Commission is still a monumental document. It called for linking education with National Development. However, it did so with some hesitation. Instead of expressing candidly in favour of Education for National Development, it described its report as 'Education and National Development', implying as if both were parallel streams. The need for inter-linking both by making education a means of National Development and making it an instrument of social transformation and Social Revolution, should have been clearly projected. The Report led to the formulation of a National Policy on Education in 1968. However, it did not get the kind of implementation-drive it needed. The NPE-1986, is a sound document on the whole. Acharya Rammurti Committee has also substantially reinforced NPE. Its plea for integration of secondary and higher secondary education and setting of educational complexes to reduce the rigidity of the ladder system and isolation of different stages of education needs worthy consideration. CAGE committee under Shri Janardan Reddy is reviewing NPE as well as Rammurti report. I hope it will consider some concrete measures to integrate Socially Useful Productive Work at all levels and in all streams of education. I am glad that a serious effort has been made to implement some of the major recommendations of the NPE. But the most innovative recommendation of the NPE-1986,

on Rural Universities and Basic Education (Nai Talim) has remained totally unimplemented. Despite a formulation of a detailed project report, no action has been taken on this. The fate of Rural Society considerably depends on whether our system is able to develop an indigenous Rural Higher Education that is conducive to foster a sustainable development in the Rural Society to contain its drain towards cities.

UNESCO's famous report on "Learning To Be" prepared by the International Education Commission under the Chairmanship of Edgar Faure in 1972 was another landmark. We have now a vast reservoir of new thoughts on the goals as well as methods of education which are relevant for university education. Several authors like Paulo Freire, Gunnar Myrdal, Schumacher, Evan Illich, Eric Froam, Alvin Toffler, Johan Galtung, have written extensively advocating reconstruction of the global society through Education. The University System is expected to play a much more active and front-line role in this new context. Education according to these thoughts should not limit itself to a mere cognitive process. The connative and affective aspects of learning are inseparable from cognitive aspects. Education should be the outcome of the totality of cognitive, connative and affective processes in an integral way. This can also be stated in our classical mode as a Trinity of teaching, research and extension. All these three should work in a unified way and must complement and supplement each other. This type of Trinity approach will facilitate liberation of our University System from alienation and fragmentation.

The widened horizon of education calls for intensification of these

three processes. It also calls for operating in the context of global society rather than within traditional national parameters. While roots of Education must be in its own soil in terms of serving the local community, the main thrust of modern education should be on "Think Globally, Act Locally". Our ancient scriptures had also this kind of a vision when as villagers they prayed for the well-being of the Universe. "*Vishwam Pushtam Grame Asmin Anaturam!*" Because of the rapid spread of knowledge and other modern means of print as well as audio-video technology, it is now easier to have a global horizon in the mind and apply it to our own local situations. Shri Jawaharlal Nehru's classical expression that University stands for humanism and tolerance must be remembered as basic principle of the University System.

Education cannot be limited to upper classes or middle classes and it has now to look after the learning needs of the vast proletariat masses. This has led the world to the goal of 'Education for All' by 2000 A.D., proclaimed in the World Conference organised by UNESCO, UNDP, UNICEF and World Bank at Bangkok, in March 1990. Even an international institution like World Bank has now realised that mere physical development does not lead to elevation of human life. It needs a much greater effort to build a quality of life through education. This thrust of 'Education for All' will inevitably create a heavy responsibility on teachers, administrators and policy-makers of the university system. Every person in every layer of our society will have to be provided access to basic fundamental education. They will also have to be given access to continuing education and life-long education according to their diversified needs. The writings of Shri R.H. Dave of UNESCO Institute of Education

are very important contributions in developing life-long education.

The chairman of the International Education Commission of the UNESCO, Mr. Edgar Faure, in his letter of submission to the UNESCO Director-General rightly stated in 1972 that the four basic assumptions underlay in reconstructing education.

"The first is that the existence of an international community which amidst the variety of nations and cultures of political options and degrees of development, is reflected in common aspirations, problems and trends, and in its movement towards one and the same destiny. The corollary to this is the fundamental solidarity of Governments and of the peoples, despite transitory differences and conflicts."

"The second is belief in democracy, conceived of as implying each man's right to realise his own potential and to share in the building of his own future. The keystone of democracy, so conceived, is education — not only education that is accessible to all, but education whose aims and methods have been thought out afresh."

"The third assumption is that the aim of development is the complete fulfilment of man in all richness of his personality, the complexity of his forms of expression and his various commitments — as individual, member of a family and community, citizen and producer, inventor of techniques and creative dreamer."

"The fourth assumption is that only an overall, life-long education can produce the kind of complete man the need for whom is increasing with the continually more stringent constraints tearing the individual asunder. We should no longer assiduously acquire knowledge once and for all, but learn how to build up

a continually evolving body of knowledge all through life - 'Learn to be'".

The report also underlined that the deficiency of modern education as a "gap between its content and the living experience of its pupils, between the system of values that it preaches and the goals set up by Society".

The modern University thus is confronted with a vastly expanded role of education with a leading role for university systems. The University can no longer remain a feeder or apex organisation but have to play a pioneering role of a forerunner in social change and social development. This invariably requires a highly flexible curricular system which is responsive and pace-setting at the same time.

Before we proceed with specific enunciation of the role of our University System, it is necessary to first consider our social obligations of ensuring literacy for all as a prerequisite of entire human development. Achievement of minimum level of literacy to facilitate minimum levels of learning for all people, is a task which the University System cannot escape. The modern world still consists of nearly 100 million illiterates. These are persons who do not know how to read and write. They are denied opportunities of developing their own personality and their role in the community and society. Whatever may be the differences in kind and quality of human genius, it must be recognised that all human beings have some genius in some field and if our education system develops a diversified process of education according to the genius of every group of individuals, it should be possible to give access to education for all. The concept of continuing educa-

tion and life-long education is very relevant in this respect. The wide gap between educated and uneducated can be bridged by making literacy a universal qualification. This is most important in the Third World and more so in India where nearly half of the world's illiterate persons reside. Our University System will hardly be able to justify itself if it continues to play a spectator's role in this question of uppermost national priority. The system as a whole including managements, teachers, students and all other related to it, need to involve themselves, in resolving this very important question of removing deprivation of our masses. The literacy will be an entry point in the learning society and through variety of non-formal continuing education programmes, it should be possible for everyone to have life-long education, depending on their aptitude, ability and needs. We should remember that 1991 census has established that despite over 9 percent increase in literacy rate in last decade, the absolute number of illiterates have increased from 301 million in 1981 to 324 million in 1991, an increase of nearly 22 million. This clearly indicates the gravity and magnitude of the problem of eradication of illiteracy. It is almost imperative to work through time bound, area specific and learner centred voluntary movement, to achieve a threshold point of 80% literacy rate.

It is undeniable that our universities have played a most vital part in developing scientific and technological manpower. However, what universities have not been able to do is to spread the scientific and technological knowledge in proletariat masses through extension services, so that a wide gap that obtains between creators and users

of scientific and technological knowledge, is bridged without much delay. This is partly due to virtual neglect of social sciences. We should also remember that alongwith scientific advancement the world is slowly but steadily moving towards a socio-spiritual renaissance.

The universities have a very great role to play in the survival of human race and the planet Earth. This requires subscribing to the total philosophy of science. Science is not without goals and values. It is not a neutral concept. The Pugwash Conference of 1982 had called on the world scientific community to accept responsibility and become directly involved in actions to avert nuclear war. We have to formulate a very active and positive role of the University System for the realisation of non-nuclear, non-violent world.

It is true that the world is based on science and technology. Since some of the path-breaking scientific innovations happened in West, a misbelief has spread that modernity will come only through Westernisation. This is a wrong mix-up of both. While modernisation should be pursued vigorously in our own ways, the modernity should not be identified with Westernisation. Due to this incorrect identification, the University System in India has not been able to establish its identity. Even after 45 years of Independence, we have not been able to give up some of the colonial forms of convocations in the alien style.

This leads us to the role of the University System in development of sports and culture. Unfortunately, our system is too compartmentalised and fragmented. The system as a whole is virtually devoid of cultural and environmental components. We have no congregations in departments or institutes of

studies. Most of the universities do not have even a minimum number of instructors for music and performing arts. This presents a very distorted view of life as if universities are just machines to produce stereotype graduates irrespective of social and cultural aspects of life. The AIU is keeping a semblance of cultural life alive by organising annual youth festivals. But the system as a whole is unconcerned with the cultural aspects. This is very very sad.

The University System has a great role to play in promoting harmony among all sections of our society. This includes all sections of the university too. The foremost thing required for this is to resolve to ensure that every university is an unified autonomous community. It must seek solutions of all its differences within its own community. It must work for preservation of secular and composite culture of India. Inculcation of a culture of communal harmony should be our foremost concern.

The curricular system of university is hardly growing with the changing times. It has not manifested a dynamism needed for this. The knowledge in the world is growing exponentially. In spite of the fact that twenty thousand books are published every year in India alone, 50% of which are even in English language, the reflection of the new literature in Indian curricular system is very marginal. Most of the curricula in University System are not updated for decades. There is no mechanism to assess new knowledge and new social needs. The result is that the knowledge students acquire through the system is later found to be of not much use outside the system in terms of knowledge, skills or attitudes. The ideas of the pre-war world still persist which have led us

in several stereotyped curricula. The task of reflecting post-cold-war demands urgent attention. The context of everything is changing so fast that unless the curricular system is made dynamic by making the procedure of its formulation simplified, it will hardly retain its relevance. A beginning be made at least at the postgraduate level in departments directly managed by the universities. Instead of the Board of Studies, we should have Course Committees consisting of teachers of the departments and outside experts. These Course Committees should meet frequently and review curricula from time to time. Our consideration for equivalence for degrees should also be changed. Apart from the commonality of duration, we should not equate curricula on the basis of contents. This will be feasible if the college education at undergraduate level is left to the Board of Collegiate Education. The universities should not be burdened to maintain a system in which curricula do not change even after decades.

The next aspect of the Indian system is the question of decentralisation. Ever since we decided to become a welfare State, there is a growing and even accelerating tendency in all governmental authorities and in all macro-organisations to concentrate power at top level. All institutions sponsored by the central authorities are described as apex institutions. The so-called apex institutions tend to assume the authority to direct everyone in every part of the country. In fact, the central authorities' description of autonomous institutions as institutions under their control or subordinate institutions is highly objectionable. Any move towards decentralisation, therefore, requires an attitudinal change towards

all government, semi-government or non-government autonomous institutions. No central institution should function in a spirit of apex institution vis-a-vis their own institutes. They should function as pace-setting partner institutions. They should develop networking methods. Even between the UGC and universities, the relation should be of equality and partnership and not of apex and subordination. In the same way, the university should not behave as an apex body in relation to its colleges too. The UGC and universities themselves should initiate a practice of debureaucratisation and professionalisation with a view to achieving decentralised learning society.

It is high time now to dissolve the system of affiliation once for all. If the teachers and employees are feeling insecure about their employment, let the Central and/or State Governments take the responsibility for the salaries of teachers and other employees of universities and colleges. Even today the situation is practically like this. Once the security of service is granted to all employees, there should be no reason to oppose the idea of autonomous colleges. I appeal to teachers of colleges to support this thrust in the interest of enlivening university education. 80% of the colleges can be a part of the Collegiate Education Boards and 20% of the affiliated colleges which opt to remind with the university should be developed as autonomous institutions of innovation and excellence. The universities will then largely deal with postgraduate education where all types of diversified experiments will be conducted and shared to the country and even to the global community. The creation of State Council of Higher Education should be considered from the point of

decentralisation of State authority. The universities should be vigilant to ensure that this coordinating mechanism of debureaucratisation does not become another inroad on autonomy of the universities.

The next important question is the question of medium of instruction. Despite more than 44 years of our freedom we have not been able to switch over effectively from English to regional languages as a medium of instruction, a lukewarm attitude persists in implementing it. The time spent so far for switching over to regional language has been too long. It was a mistake to create University Book Production Boards outside the University System. Had the same amount of money been distributed to the universities, the results would have been better. We should not attempt uniformity of books for all universities. We should at least provide facilities to teach every subject in the University System whether it is agricultural science, basic science and technology or social science and humanities, through the regional language, at least as an alternative medium. It needs no evidence that despite our attachment to one of the widely used international languages like English, we can never make it a language of our masses. It is therefore inescapable to develop Indian regional languages and Hindi by using them as media of instruction at every level and in all subjects. If English is to be used to enrich our languages then an alternative regional language medium is inevitable. A genuine spirit of accommodation should be developed to respect and support those who opt for learning Hindi language for interstate movement. The work of Dakshina Bharat Hindi Prachar Sabha and Kerala Hindi Prachar Sabha in this respect is commendable. Our system should be flexible enough to incorporate the

graduates of these recognised Hindi institutions for further studies through bridge courses wherever needed.

The crucial question of autonomy and accountability can be resolved if those who are in government and government administration accept the limits of Government authority. Harold Laski and G.D.H. Cole dealt with the whole question of plural nature of governmental authority in a modern welfare State. The bureaucratic apparatus seems to have assumed that the government is the only and final authority to decide everything. This is a wholly mistaken concept. In a classical definition, the State emerges as a total product of territory, people, sovereignty and government. Those in power whether in government or bureaucracy identify State with the government. This misconception has resulted in serious encroachment on semi-government autonomous organisations and non-government and voluntary agencies. Government is just one component of the State and not the sole component. If this is accepted, then the whole approach towards non-government or government sponsored autonomous organisations will change. The financial resources of the State come from tax-payers. It does not automatically empower the government to be the sole arbiter on the use of these resources. The government may act as a coordinating agency and not a dictating agency and it must develop a spirit of partnership with the non-government or semi-government organisations. Viewed in this background, the university autonomy should be highly respected by the government. It is a sad commentary of our contemporary life that even Chancellors of the universities try to do political interference in the universities. A directive issued by the

former Governor of Karnataka requiring the Vice-Chancellors to take his permission before leaving the headquarter of the State is a case of gross interference. I am told it now stands withdrawn. But this was a wholly unwarranted interference by former Chancellor. Such cases bring down the dignity of high office of the Chancellor as well as the Vice-Chancellor. The AIU has time and again protested against the arbitrary termination of the Vice-Chancellors, at the pleasure of the Chancellor without going through a judicial process. The dignity of the Vice-Chancellor is the corner stone of the edifice of the University System. Whatever may be the language of the statute, the spirit of the Chancellors' responsibility requires them to act as a moral authority to support the University System, to protect its autonomy and by persuasion help it to maintain a proper health of its system without becoming a super-authority. The Vice-Chancellor is the colleague of the Chancellor not a subordinate officer. This is not understood when Chancellors communicate with the Vice-Chancellors through their administrative mechanism instead of communicating directly.

It is also very disturbing that for every inadequacy in the university, external control is being sought. The accountability should be settled within its own system through rigorous checks and balances. Any external imposition for its accountability hardly makes the system more responsible. The Gnanam Committee's recommendation of granting endowment funds by the concerned governments deserves positive consideration at least for all non-salary recurring expenses to safeguard university autonomy from frequent inroads from bureaucratic as well as political authorities. The universities should also pledge themselves not to burden the govern-

ment by creating higher privileges of financial or other nature. This is a great moral responsibility on us.

In 1978, the UGC made a classic statement to make extension a third dimension of education equal in importance to teaching and research. This is a measure of great significance and is intended to make the system more realistic and nearer to the life of the people. Extension is a way to remove alienation from the people. This cannot be met by just creating departments of extension. This requires incorporation of the component of extension in syllabi of every subject of studies. This simply means all studies should be correlated with students' experiential learning process through extension programmes.

Three features of the centralised planning process have come to the fore. Firstly, our entire planning and development process starts from macro-scenarios. Excessive macronisation alienates it from the grassroots. Secondly because of centralisation and macronisation, we are made to look vertically and not horizontally. This, therefore, does not enable just to develop horizontal networks of partnerships. Thirdly, we are unable to start our development with have-nots — those who have no assets except their capability to work. This deprives a major section of our people to participate in development process. While planned development is imperative for countries ridden with poverty and hunger, benefits of development must reach a priori to the deprived sections of our people who have been waiting for their turn for decades. In educational planning, we should avoid all these deficiencies of our development process so that education and community become partners at local level.

Centralisation has neither proved efficient nor cost-effective. Under the circumstances, fate of big communities of metropolitan urban areas is jeopardised. Even townships are also under threat of extinction due to pollution. The only hope according to A E Morgan is on small communities. He made this plea in his famous monograph "The community of the future and the future of community" published by the Hindustani Talimi Sangh. We should develop an educational system that will sustain them and save them from further drain. This requires a nationwide promotion of scientific micro planning. The new system of education that is emerging will have to deal more with micro-communities in future. The Education will have to be communitised both within as well as outside the campus, with a close inter-linking of economic, social, cultural and

development process of the adjoining neighbourhood community. University will not be for only enrolled students, but it will cater to the needs of the neighbourhood community in an organic manner. These will be secular communities. The local communities will be involved in the university. Similarly and simultaneously university will be involved with the life of the community. "Community Education" will be a major instrument for this live and growing linkage. The size of the university or autonomous college should be very modest, keeping in view that future communities are bound to be smaller than today, if the world is to survive. The survival of the world depends not on centralised institutions but on decentralised micro communities. This is the vision we should keep in mind for future educational development and henceforth locate

all our educational institutions including professional institutes by and large in small communities of rural areas. This will automatically accelerate the development of Rural Society.

With the growth of the distance learning as a mode of acquiring knowledge, access to even university education will be at the door steps of everyone. All universities should have some open learning programmes. At least Open Universities should prepare their reading materials in regional languages and should not perpetuate sole dependence on English language materials only. The tendency to formulate courses on the conventional pattern of curricular system will not fulfil the wider social purpose. It should promote life-centred education as a priority of its system rather than giving same type of degrees.

UNIVERSITY NEWS

will bring out a Special Number to commemorate the

10th New Delhi World Book Fair

being organised by the National Book Trust, India on
1-9 February, 1992. The theme of the Special Number will be

THE LITERATURE OF OUR TIME

The term literature has been taken in its true sense to mean literature of all subjects and all languages. Readers are invited to contribute to the **Special Number**. They may concentrate on a particular title they happened to read in the recent past that they really enjoyed and would like to share with other readers the thrill, the ecstasy they experienced. In the alternative, they may even pick up a particular author who fascinates them or inspires them. Or, they could also take a wider canvas and examine the books published during the last decade to pick up the trends of development in their subject.

Join in this voyage of discovery to find out if books are really the faithful mirror of society — the purveyors of our culture and an index of our aspirations, growth, and our trust in the future. Your contributions should reach us latest by 20th December, 1991.

School Education in the 1990s

Paying special attention to the education of the girl-child particularly of the weaker sections, decentralisation of educational planning and management including preparation of educational material to suit the needs of different sections of the community, granting leadership role to the principals of schools, and giving statutory status to the National Council for Teacher Education (NCTE) for improving the standards of teacher training — were some of the important recommendations of the National Seminar on "School Education in the 1990s" held in New Delhi recently.

The National Council of Educational Research and Training (NCERT) had organised the meet to discuss the problems and perspectives of school education in this decade. The Prime Minister, Mr. P.V.Narasimha Rao who opened the meet, had asked the group to send its recommendations so that they could be taken into consideration while formulating the eighth Five Year Plan which is on the anvil now.

The group reiterated that elementary education should continue to receive maximum attention, so that, the goal of 'education for all' is achieved within the targeted period. It was urged that education and development should be "seen together", and suitable civic amenities, employment, minimum social security, drinking water, fuel and fodder should be provided — so that the rural poor, especially the girls, are freed from domestic chores to participate in elementary

education. Other development sectors should positively contribute to universalise elementary education.

The experts felt that the District Institutes of Education and Training (DIETs) being set up in the States, as a part of the programme of decentralisation, as envisaged in the Programme of Action (POA) of the National Policy on Education (NPE) 1986, should become nodal institutions for all aspects related to quality improvement of elementary education. This would enable the DIETs to function as "nodal points" for implementing the academic aspects of the new policies and programmes, it was pointed out. In this connection, the Panchayati Raj system needs to be reviewed and revitalised, so that the local bodies shoulder the implementation and monitoring of the universal elementary education programme. It may be recalled that the NPE had advocated establishment of District Boards of Education for planning and management of elementary education.

As for distribution of resources, the group felt higher sectors of education should be "required to mobilise additional resources essentially from their own beneficiaries". This, it was felt would do away with the necessity of subsidies, and, in turn, help in "protecting" the available resources for elementary education.

Alongside this, the elementary education sector should mobilise community participation in a mean-

ingful way, for providing non-monetary inputs. The participation of voluntary bodies and developmental agencies should help in mobilising human and other resources, it was pointed out.

As for training teachers for elementary schools, the group felt that universities should provide technical support so that innovations percolate down the line. For this the linkages between the directorates of education and universities and agencies involved in educational innovations should be strengthened.

The group was emphatic that the effort to improve quality of education should run through all sectors of education, if elementary education is to be meaningful to children, most of whom dropout at that stage.

The need to "rationalise" curriculum at the secondary stage, so that it is not a burden to them, was also stressed by the group. New concerns in education call for inclusion of several topics like remote sensing, consumer education, productivity education, standards education, value orientation and computer education at the secondary stage. Since it is impossible to include in the curriculum all that needs to be learnt, the approach (for curriculum designers) should be to "encourage development of motivation and skills for continuous independent learning".

Since "information transmission" is not the purpose of schooling, "minimum level of learning in each subject at the end of each stage of secondary education needs to be specified", and at the same time the

concern should be to widen the knowledge base of the learner, it was pointed out.

As for such important areas like work experience, health and physical education, and art education these are to be made integral areas of school curriculum, and given parity with other subjects. At the same time, yoga education and value education need to be suitably integrated into the curriculum, it was emphasised.

"Package" should be the watch word for introducing examination reforms, and this package, would include 'semester system', 'continuous comprehensive evaluation', and provision for 'credit accumulation'.

The group called for a "fresh look" at the approaches and strategies to computer education considering that electronic media and developments in educational technology have a profound influence on educational programmes.

Finally, the group felt that one-year teacher training programmes were inadequate for developing skills and values vital for the teaching profession. So, the duration aspect needs to be reconsidered.

1991 Census and National Literacy

The absolute number of literates in the country has shot up from 234 million in 1981 to 352 million in 1991, while the absolute number of illiterates has only marginally increased from 302 million to 324 million during the decade, according to the 1991 census findings.

An analysis of the census data regarding literacy reveals that there has been a near 50 percent increase in the number of literates, while the

increase in the number of illiterates is just over 7 percent during the decade.

The total literacy rate in 1991 is 52.11 percent with male literacy levels of 63.86 percent and female literacy levels of 39.42 percent.

In the last few decennial censuses of India, children below nine years of age were treated as illiterates.

Since ability to read and write with understanding is not ordinarily achieved until one had at least one to two years of schooling, it was felt that the population aged seven years and above is to be classified as literate or illiterate and the population below this was to be excluded while computing the rate of literacy.

In view of this, in the 1991 census, the question on literacy was canvassed only for population aged seven years and above. The table below will give an indication as to how the literacy rate has increased over the last 40 years.

Literacy Rate - India : 1951-1991			
Year	Persons	Male	Female
1951	18.33	27.16	8.86
1961	28.31	40.40	15.34
1971	34.45	45.95	21.97
1981	43.56 (41.42)	56.37 (53.45)	29.75 (28.46)
1991	52.11	63.66	39.42

Literacy rate for 1951 and 1971 relate to population aged five years and above. The rates for the years 1981 and 1991 relate to the population aged seven years and above. The literacy rates for the population aged five years and above in 1981 have been shown in brackets.

The literacy rates have increased during the decade 1981-91 crossing

the 50 percent mark. For the population aged seven years and above, the literacy rate has increased by 8.55 percentage points. The increases in male and female literacy rates are of the order of 7.49 and 9.67 points respectively.

Even though strict compression with earlier decades may not be possible due to the changes in the age-group to which they relate, it appears that increase in literacy rate observed during the decade 1981-91 is higher than the increase of 6.97 percentage points observed during 1971-81 for the population aged 5 and above.

During the decade 1961-71 literacy rate of population aged 5 and above had increased only by 6.14 percentage points.

During the decade 1981-91, the population aged seven years and above has been estimated to have increased by 140.23 million females.

During the decade, while 118.13 million persons have become literate, 22.10 million persons have been added as illiterate. Of the latter, 5.79 million are males and 16.31 million are females.

Kerala, where the literacy rate is about 91 percent, ranks first in the country in both male and female literacy. Among bigger States, Tamil Nadu comes next with a literacy rate of 63.72 percent and Bihar the lowest with a literacy rate of 38.54 percent.

The States of Andhra Pradesh Arunachal Pradesh, Bihar, Madhya Pradesh, Meghalaya, Orissa, Rajasthan, Uttar Pradesh and the Union Territory of Dadra and Nagar Haveli have literacy rates below the National average. Female literacy rates are very low in Rajasthan (20.84), Bihar (23.10) Uttar Pradesh(26.02).

Medical Varsity Under Study

The Karnataka Government is seriously considering the setting up of a medical university to streamline medical education in the State. This was revealed by the Chief Minister S. Bangarappa while inaugurating the 58th Karnataka State medical conference, organised by the local branch of the Indian Medical Association. He called upon the State Unit of the IMA to give suggestions on the shape of the university.

He sought the association's help in the successful implementation of Sushrusa, the health programme meant for the early detection of diseases among the rural masses. The government was ready to sanction more funds if Rs. one crore already provided this year was not sufficient, he said.

Dr. P. Narayan, the President of the Karnataka branch of IMA in his presidential address, said the number of doctors was increasing but the quality of health services had fallen. He called upon doctors to uphold the ethics of the profession.

Women's Polytechnic Inaugurated

Mr. S. Bangarappa, Karnataka Chief Minister, inaugurated the World Bank-aided Rs. 7-crore women's polytechnic. Speaking on the occasion, he stressed the need for sound technical education to help produce quality products, which could compete well in the international market.

He said 14 women's polytechnics were being set up with a grant of Rs. 50 crore from the World Bank to complement the Vishwa scheme in the State.

The Vishwa scheme, meant to promote rural employment, would

be implemented within three years instead of the earlier target of five years. A team of experts would be sent to China and some European countries to study the development of cottage and village industry there, he added.

UN Week Celebrations

The need for attitudinal change towards environmental protection and ecological balance was emphasised at the concluding session of the UN Week Celebrations organised recently by the Osmania University Library — the only UN documents depository centre in Andhra Pradesh. Delivering the valedictory address, Prof. S. Bashiruddin, Head, Dept. of Communication & Journalism and Vice-Chairman (Social Sciences), Indian National Commission for Co-operation with UNESCO, said that Indian heritage of respect to nature including plant and animal life was in consonance with the current UN environment programme on ecology and human development and to avoid degradation of environment and human life.

The recent instances of Chipko Movement in the Himalayan Foot Hills initiated by Sunderlal Bahuguna and mobilisation of media and public opinion against the hydel project in Kerala's silent valley proved that India was a pioneer in conservation and concern of environmental balance, he added.

Dr. (Mrs.) Dorothy Issac, Chief Librarian, Osmania University, speaking on the occasion, said that the UN Week was earlier inaugurated along with a Book and Documents Exhibition in the Library by Prof. Vanaja Iyengar, In-charge Vice-Chancellor and screening of films on activities of the

UNESCO, UN environmental programme, etc., for the benefit of staff, students and the public, to make the youth aware of the need for observing guidelines on avoiding the air, water and land pollution.

AIDS Testing Centre for PGI

An AIDS testing centre is proposed to be set up at the PGI for Jammu and Kashmir, Himachal, Punjab, Haryana, and Chandigarh. This was indicated by Mr. M.L. Fotedar, Union Minister for Health and Family Welfare during his recent visit to PGI in Chandigarh.

The long-pending demand of a "trauma centre" for the PGI is also expected to be cleared shortly. Medical professionals who shared their views with the minister suggested that the PGI should be treated on a par with the AIIMS, Delhi, in regard to the allocation of funds and facilities. The Minister is reported to have said, "These two — the PGI and the AIIMS — are my two eyes" and added that there was, thus, no question of unequal treatment being given to the two institutes.

IGNOU Plans New Study Centres

The Indira Gandhi National Open University (IGNOU) proposes to set up three new study centres in Himachal Pradesh by the end of next year. According to Prof. V.C. Kulandi Swamy, Vice-Chancellor, the new centres would be located at Nahan, Kulu and Rampur.

The IGNOU has, so far, established six study centres in the State at Shimla, Solan, Hamiarpur, Mandi, Dharmasala and Chamba. Besides, the university has a regional centre at Shimla which was

established in July 1989. It takes care of Jammu and Kashmir and Himachal Pradesh.

Prof. Kulandai Swamy said that about 5000 students have, so far, been enrolled in the region for various courses. He announced that the open university would introduce a B.Sc course in mathematics, physics, chemistry and life sciences this year.

Computerising TIET Library

Air Marshal Shri K.S. Bhatia (Retired), Advisor to Government of Punjab recently inaugurated Computer Section in the Central Library of the Thapar Institute of Engineering & Technology, Patiala. The Library using the package CDS-ISIS 2.3 version has started putting its catalogue on to the Computer. To begin with, the documents obtained from January 1991 onwards have been fed to the Busybee PC-AT. For the documents obtained earlier, only simplified cataloguing data will be entered. The users can access the data by surname of author, joint author, title, classification number, subject heading, keywords in the title, various combinations of keywords, accession number. It can also display all entries with all derivations and declensions if root of a keyword is given.

After a sizeable data is entered, a few terminals will be made available to the users to access the data as from a public catalogue.

Nehru Science Exhibition

Shri R. Venkataraman, the President of India, recently inaugurated the 20th Jawaharlal Nehru National Science Exhibition for Children at Ernakulam (Kerala). The inaugural function was presided over by the

Governor of Kerala Mr. B. Rachaiah. The Union Minister of Human Resource Development, Mr. Arjun Singh, the Kerala Chief Minister Mr. K. Karunakaran and the Kerala Education Minister Mr. E.T. Mohamed Basheer also addressed the inaugural function.

Organised every year by the National Council of Educational Research and Training (NCERT) the objectives of the yearly science exhibition for children are (i) to expose and encourage scientific talent in children and develop creative thinking and habit of exploration, (ii) to make them realise the relevance of science to society and the responsibilities of the scientists of tomorrow, by encouraging the problem-solving approach and the development of appropriate technology — especially for rural areas, (iii) to stimulate interest in science and to inculcate scientific attitude, aesthetic sense and team spirit amongst children, and (iv) to popularise science and create an awareness of the socio-economic role of science amongst the masses.

The theme for this year's national science exhibition was 'Science and Village'. Children from about 150 schools all over the country brought their scientific models and exhibits for demonstration at the exhibition. Navodaya Vidyalayas and science

clubs also participated in the event.

Training Course in Conservation

INTACH Indian Conservation Institute, Lucknow, is organising a Training Programme — "One Year Diploma Course in Conservation of Documents, Manuscripts and Paintings on Paper". The requisite qualifications for the trainees are B.Sc with Chemistry or Degree in Fine Arts (B.F.A). Institutions may depute persons engaged in conservation work with necessary academic qualifications. The training will help in producing trained Conservators whose dearth is keenly felt by institutions having such material in their holdings.

Further details may be had from the Institute's office located at A-1/11, Sector B, Aliganj Scheme, Lucknow-226 020.

Rs. 2 Crore for Pbi Univ Colleges

The UGC has earmarked Rs. two crore as financial assistance to various colleges, affiliated to Punjabi University, Patiala. This decision has been taken by a UGC expert team which visited the university recently.

News from Agricultural Universities

Emerging Thrust Areas at HAU

Three centres of excellence in Agricultural Education Technology, Bio-technology in relation to Animal Health and Soil and Water Management are proposed to be established with the ICAR assistance at Haryana Agricultural University during 8th Five Year plan. This was revealed by the Vice-Chancellor, Dr. Amrit Lal Chaudhry recently.

Highlighting the thrust areas of the 8th plan of the university, Dr. Chaudhry said that rational financial allocations had been made for teaching, research, extension activities, administration and other infrastructure. To enable the university to meet the future challenges the Vice-Chancellor said that priority would be given to the

development of technologies pertaining to the emerging areas like dryland agriculture, location specific research, biotechnology, farming system and post harvest. Intensive research programme would be taken up on rice, rapeseed, cotton, sunflower, bee-keeping, mushroom cultivation, integrated nutrient management and on control of pest management, he added.

In teaching, said Dr. Chaudhry, emphasis would be laid on the qualitative improvement of the academic programmes and modernisation of teaching methodology by adoption of audio-visual aids in a big way. New academic programmes in bio-technology, agriculture management would be initiated in addition to strengthening of ongoing postgraduate programme in various disciplines of the constituent colleges. Keeping in view the importance of computer's use in the science and technology, a computer lab would be established in addition to upgrading the local network system for efficient financial and administrative management. Likewise establishment of Students Activities Centre for girl students, strengthening of library facilities at the constituent colleges were some of the main features for which sufficient amount had been earmarked.

Dr. Chaudhry further said that in order to accelerate improved technology adoption rate and also to reduce the time gap between technology generation and its adoption, the extension wing would be strengthened by establishing a communication centre for preparing video cassettes, lectures and radio talks for the farmers. All required audio-visual aids including TV, VCR, slide projectors etc. would be provided at each Krishi Gyan Kendras of the State to properly educate the trainees coming to these centres.

New Varieties of Cotton and Moong

The scientists of the Haryana Agricultural University(HAU), Hisar, have evolved two new varieties of Cotton and one of Moong and these have been released for general cultivation in the State.

The American cotton HS-6 has outyielded the present popular cotton variety H-777 by a margin of 15.8 percent and it has been recommended for early cultivation i.e. from April to May 15. At the research trial, the scientists obtained the higher yield of 4100 kg per hectare. The other variety of cotton H-974 has been recommended for late planting i.e. from May 15 to June 10. This variety yields 16.8 percent higher yield than the present popular cotton variety of H-777.

The new disease free and early maturing Moong bean variety MH83-20 (Asha) has been developed through hybridization. It has shining green grains and is fairly tolerant to major moong diseases. The scientists have recommended this variety for commercial cultivation. At the 19 research trials conducted by the scientists at the research farm as well as on farmers fields, this variety registered 14 percent higher yield than the earlier evolved varieties of Moong.

Dr. Burrridge Visits PAU

Professor Michael J.Burrridge, a Veterinary Scientist from the University of Florida, USA, recently visited the Punjab Agricultural University (PAU) and held discussions with the animal disease experts of the Punjab Agricultural University for the development of collaborative research programme on the control of tick-borne diseases

and their tick vectors between the University of Florida and the PAU.

The PAU has built a well-equipped laboratory costing about Rs.1.5 crore which has already developed vaccine and a diagnostic test for the control of Theileriosis – an important and killer disease of crossbred calves. The PAU scientists have observed that 70 percent of the new born crossbred calves suffer severely from Theileriosis and at least half of these die from the disease. The PAU experts have done 1900 vaccinations, covering 300 villages and 1300 individual dairy farmer owners in the Punjab State. This vaccine has proved highly effective in preventing the disease in younger calves.

Dr.A.S.Grewal, Senior Immunologist and Principal Investigator and Incharge of the Tick Borne Diseases Research Centre at the PAU informed the visiting scientist that a vaccine developed by PAU for the control of ticks and tick borne diseases was a breakthrough in the control of ticks and tick borne diseases of the animal. He also reviewed the future plan and implementation of the field programme for the control of ticks and tick-borne diseases.

Dr.Burrridge also visited the Theileria vaccination camp organized by the PAU experts at village Butter in Faridkot district and vaccinated about 100 young crossbred calves. The dairy farmers participated in the camp from 15 surrounding villages. Dr. Burrridge also delivered a seminar on "New Technologies for the Control of Tick Borne Diseases and Tick Vectors of High Milk Yielding Dairy Cattle".

Minister Visits HAU

"The nation looks at the Agricultural Scientists with hope and expectation who have to guide the

nation by evolving and suggesting new strategy which, in view of the increasing population and decreasing land holdings, is applicable to the lands of the different regions", observed Shri Harpal Singh, Minister for Agriculture, Haryana, while addressing the officers of the Haryana Agricultural University recently. The Minister said that to keep pace with the fast developing world, the scientists had to change their priorities and thrust areas accordingly. How to increase the production was not the main problem today but how to increase the income of the farmers was the main question whose solution scientists had to find, he added.

On his visit to the university the Minister went round the different colleges of the University. At the research farm, the Minister saw the

kharif crops grown with the latest technology. The scientists explained to the Minister the technology that had been taken up at the research farm to control the water rising table. The Vice-Chancellor, Dr.A.L.Chaudhry explained to the Minister the teaching, research and extension activities of the university. On being explained the unique extension set up of the university and the new agricultural technology, the minister was highly impressed and complimented the Vice-Chancellor and the university scientists for the praiseworthy work with which the State had achieved a record production. The Vice-Chancellor stressed the need of initiating new programmes at the university which, he said, would further enable the university to contribute its maximum for the betterment of the farming community of the State.

News from UGC

Countrywide Classroom Programme

Between 25th November to 30th November 1991 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

1.00 to 2.00 p.m.

25.11.91

"Remote Sensing - XIV : Image Processing and Data Products"
"Devaluation of Rupee"

26.11.91

"Ways of Thinking - SEP III :
Worlds of Waves"
"Volumes of Reacting Gases"
"The Laser"

27.11.91

"Understanding the Stars"
"Evaluation - I : An Introduction"
"Tumba - Plant With Future"

28.11.91

"Programming in PASCAL
Language - III"
"Moving Pictures in Anthropology"
"Byron..Byron..Byron - II"

29.11.91

"Vedic Mathematics - IV"
"Gender Bias in Medical Tech-

nology-II"

"Smokless Chullah"

30.11.91

"Communication Through
Mime"
"The Pursuit"

IInd Transmission

4.00 p.m. to 5.00 p.m.

25.11.91

"Remote Sensing - IX : Plat-
forms for Earth Observa-
tions - I"
"Economic Performance & Tri-
angular Analysis"
"With Reference to"

26.11.91

"Properties of Chlorides and
Oxides of Period III Elements"
"Pastoral for Computers"
"Mental Health - Social Per-
ception"

27.11.91

"History of Textile Technology -
II"
"Stress Without Duress"
"Chemical Carcinogens in
Food-An Overview"

28.11.91

"Soil Mechanics in Practice"
"Scientific Toys"
"Mulkraj Anand : Portrait"

29.11.91

"The American Vision"
"Desert Plants - Survival in Sun
and Sand"

30.11.91

"Communication Through
Mime"
"The Pursuit"

Sports News

Vizzy Trophy Tournament

The Vizzy Trophy Committee at its meeting held on October 29, 1991, at Madras decided to hold the next Vizzy Trophy tournament at Baroda from January 31 to February 7, 1992. The tournament will be organised by the M.S. University of Baroda. The following will be the draws :

January 31 to February 2, 1992

(a) East Zone Vs South Zone

(b) North Zone Vs West Zone

Final : 4, 5, 6 & 7th February

Winner of 'a' Vs winner of 'b'.

The Vizzy Trophy Committee recommended to the Board of Control for Cricket in India that in future, zone matches should be played of 50 limited overs on Robin Round basis and the final should be played of 4 days duration between the winners and runners up of the Robin Round.

without affecting the number of places available to Australian students, and in fact there had been a major increase in the number of places available to them.

Mr Dawkins said the introduction of the Equity and Merit Scholarship Scheme (EMSS), in 1990 had enabled Australia to target the more needy sectors of society in developing countries in its subsidisation system. The previous system of subsidising the cost of most overseas students studying in Australia had tended to favour the well-off in neighbouring countries.

EMSS was providing about 1000 scholarships a year at a cost of about \$27 million. In addition, the Australian International Development Assistance Bureau (AIDAB) continued to fund students under bilateral development assistance programs, amounting to 2800 students in 1990 at a cost of almost \$44 million.

News from Abroad

Overseas Students Boost Australian Education

The substantial increase in international students studying in Australia in recent years had made a substantial contribution to the development of Australian educational institutions. This was disclosed by the Australian Minister for Employment, Education and Training, Mr John Dawkins, while addressing an open day at the Curtin University of Technology in Perth. Mr Dawkins said there had been a significant increase in the number of overseas students from 22,000 in 1986 to 62,000 in 1990.

The largest increase had been in full-fee-paying students, whose numbers had gone from 2,100 in 1986 to 47,000 in 1990. In 1988, the peak year of their growth, the num-

ber of full-fee-paying students had trebled, but the growth rate had now settled down to 20 percent a year.

Much of the earlier growth had been in English Language Intensive Courses for Students (ELICOS), but tertiary courses were now the area of greatest growth.

A recent study had estimated that the introduction of full-fee students had resulted in improved facilities for all international students. Inadequate ad hoc services had been replaced by well organised facilities for recruitment, counselling, financial advice and languages training before departure and better follow-up after arrival.

These results had been achieved

Mr Dawkins said the presence of international students in Australia had provided mutual benefits.

"The mix of targeted scholarship schemes and full-fee international students has enabled the provision of assistance to those most in need as well as making educational opportunities available to many more students than would have been otherwise possible," he said.

"Students from other countries have access to world class education in many disciplines essential to the development of their countries and their own personal development and prosperity. They also gain from their experiences of our society."

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on higher education. Among the topics prominently represented are educational sociology, educational planning, educational administration, teaching & teachers' training, examinations, economics of education and country studies. Developing fields of adult education, continuing education and distance education, and educational technology are also well stocked.

The library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of higher education. Files of annual reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to the AIU Library'.

The library receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly our column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The library is steadily building up a collection of audio and video cassettes on matters educational and maintains a well appointed Audio-Visual Room equipped with a double deck audio cassette recorder, a VCR and a colour TV monitor, and an overhead projector.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees in Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Marri, Bollaiah Venkaiah. **Solutions of Einstein-Maxwell equations in general relativity.** Bhavnagar. Dr J K Rao, Prof, Department of Mathematics, Bhavnagar University, Bhavnagar.
2. Singh, Indrasen. **Analytic distributions and their properties : Functional analysis.** BHU. Prof R S Pathak, Department of Mathematics, Banaras Hindu University, Varanasi.

Statistics

1. Mishra, Chandra Shekhar. **Shrinkage estimation for common parameters of the distributions.** BHU. Dr B N Pandey, Department of Statistics, Banaras Hindu University, Varanasi.

Physics

1. Bhatt, Kadar G. **Magnetic properties of magnetic liquids.** Bhavnagar. Dr R V Upadhyay, Reader, Department of Physics, Bhavnagar University, Bhavnagar.
2. Bhatt, Pragna A. **Investigations of certain physical properties of ferrofluids.** Bhavnagar. Dr R V Mehta, Prof, Department of Physics, Bhavnagar University, Bhavnagar.
3. Bhardwaj, Sanjai. **Study of electronic structure and spectra of some biologically important molecules.** BHU. Dr P C Mishra,

Department of Physics, Banaras Hindu University, Varanasi.

4. Ganguly, Sonali. **High temperature superconductivity.** BHU. Prof O N Srivastava, Department of Physics, Banaras Hindu University, Varanasi.
5. Gopi Mohan, C. **Molecular spectra and structure of biomolecules.** BHU. Dr P C Mishra, Department of Physics, Banaras Hindu University, Varanasi.
6. Krishna, J B M. **Recoil ion spectroscopy in heavy ion-atom collisions.** BHU. Dr R Shankar, Department of Physics, Banaras Hindu University, Varanasi.
7. Mahato, Krishna Kishore. **Ionization spectroscopy of some diatomic and polyatomic molecules.** BHU. Dr S B Rai, Department of Physics, Banaras Hindu University, Varanasi.
8. Pankaj Kumar. **Molecular theory of liquid crystal.** Dr Shri Singh, Department of Physics, Banaras Hindu University, Varanasi.
9. Patel, Rajesh Kumar. **Semi conductor physics.** BHU. Dr S S Kushwaha, Department of Physics, Banaras Hindu University, Varanasi and Dr R P Singh, Department of Physics, Banaras Hindu University, Varanasi.
10. Prabhat Kumar. **Study of the $\pi\pi(980)$ Meson.** Magadh.
11. Pradhan, Leela. **Antimatter physics.** BHU. Dr A V Lagu,

Department of Physics, Banaras Hindu University, Varanasi.

12. Shukla, Kirti. **Laser spectroscopy and molecular structure.** BHU. Prof D K Rai, Department of Physics, Banaras Hindu University, Varanasi.

13. Singh, Ajai Kumar. **Compound semiconducting materials and devices.** BHU. Prof P C Srivastava, Department of Physics, Banaras Hindu University, Varanasi and Prof S Chandra, Department of Physics, Banaras Hindu University, Varanasi.

14. Singh, Neelam. **Synthesis and characterisation of materials — super conducting and energy storage.** BHU. Dr A K Singh, Department of Physics, Banaras Hindu University, Varanasi and Prof O N Srivastava, Department of Physics, Banaras Hindu University, Varanasi.

15. Srivastava, Praveen Kumar. **Molecular spectroscopy.** BHU. Dr S B Rai, Department of Physics, Banaras Hindu University, Varanasi.

16. Srivastava, Priti. **Nuclear reaction dynamics.** BHU. Prof S N Mukherjee, Department of Physics, Banaras Hindu University, Varanasi.

17. Swarup, Monica. **Antimatter studies.** BHU. Dr A V Lagu, Department of Physics, Banaras Hindu University, Varanasi.

18. Vikash Kumar. **Hydrogen passivation in semiconductor devices.** BHU. Prof P C Srivastava, Department of Physics, Banaras Hindu University, Varanasi and Prof S Chandra, Department of Physics, Banaras Hindu University, Varanasi.

Chemistry

1. Bhatt, Sarvjeet Singh. **Synthesis and characterisation of titanium (IV) complexes of substituted phenols.** HP. Dr S C Chaudhry, Department of Chemistry, Himachal Pradesh University, Shimla.

2. Chaturvedi, Shree Niwas. **Nuclear and radio chemistry: Recoil chemistry in some organo metallics.** BHU. Dr S P Mishra, Department of Chemistry, Banaras Hindu University, Varanasi.

3. Gupta, Suman. **Chemistry of natural product.** Delhi. Dr V S Parmar, Department of Chemistry, University of Delhi, Delhi.

4. Jain, Amar Nath. **Electrochemical catalysis: Studies on photoelectrolysis.** BHU. Dr R N Singh, Department of Chemistry, Banaras Hindu University, Varanasi.

5. Jamwal, Vijay Singh. **Methods for the determination of some organic functions and their commercial applications.** HP. Dr S C Verma, Department of Chemistry, Himachal Pradesh University, Shimla.

6. Kanwar, Sanjiv Raj Singh. **Oligofurostanosides of Yucca gloriosa Linn leaves and synthesis of some pheromones.** HP. Dr S C Sharma, Department of Chemistry, Himachal Pradesh University, Varanasi.

7. Kaushik, Renu. **Theoretical study of some reaction paths.** Delhi. Prof. N K Ray, Department of Chemistry, University of Delhi, Delhi.

8. Khajuria, Manjula. **Studies in transport processes through titanium oxide and antimony oxide membranes.** HP. Dr R L Blokhra, Department of Chemistry, Himachal Pradesh University, Shimla.

9. Maya, R. **Matrix effects in separations using functional polymers.** Kerala. Dr K Sreekumar, Lecturer, Department of Chemistry, University of Kerala, Thiruvananthapuram.

10. Meena, C V. **Synthesis and characterisation of some lanthanide III complexes.** Kerala. Dr P Indrasenan, Prof. Department of Chemistry, University of Kerala, Thiruvananthapuram.

11. Mitra, S Sumi. **Synthetic studies in the gel-phase.** Kerala.

Dr K Sreekumar, Lecturer, Department of Chemistry, University of Kerala, Thiruvananthapuram.

12. Mohibbe Azam, Md. **Bionemetic oxidation of terpenoids and steroids.** Delhi. Dr S M S Chauhan, Department of Chemistry, University of Delhi, Delhi.

13. Munshi, Neru. **Studies of enzyme behaviour in reverse micelles.** Delhi. Dr A N Maitra, Department of Chemistry, University of Delhi, Delhi.

14. Pathania, Anita. **Phytochemical studies of Digitalis lanata, Ehrh (leaves), Rumex hastatus Linn (roots) and Agave cantala Roxb. (rhizomes).** HP. Dr S C Sharma, Department of Chemistry, Himachal Pradesh University, Shimla.

15. Raj Gopal. **Determination of dithiocarbamates and analytical application of amine-carbon disulphide reaction.** HP. Dr B C Verma, Department of Chemistry, Himachal Pradesh University, Shimla.

16. Ray, Abhijit. **Metals and metal salts in organic investigations.** Delhi. Dr J M Khurana, Department of Chemistry, University of Delhi, Delhi.

17. Sharma, Anil Kumar. **Thermodynamic and transport studies of some solutions involving mannitol and glycerol.** HP. Dr R L Blokhra, Department of Chemistry, Himachal Pradesh University, Shimla.

18. Sharma, Rajinder Dev. **Determination of some organic functional groups and pesticides containing these functions.** HP. Dr D K Sharma, Department of Chemistry, Himachal Pradesh University, Shimla.

19. Sharma, Yogender Pal. **Synthetic studies in some hetero analogues of insect juvenile hormones.** Dr R K Mahajan, Department of Chemistry, Himachal Pradesh University, Shimla.

20. Singh, Ajay Shankar. **Studies of photo electrochemical solar cells.** BHU. Dr Daram Singh, Department of Chemistry, Banaras Hindu University, Varanasi.

21. Singh, Rajeshwar. **Contact glow discharge electrolysis.** BHU. Dr S K Sengupta, Department of Chemistry, Banaras Hindu University, Varanasi.

22. Singh, Sanjay Kumar. **Synthesis of biologically active compounds and phytochemical investigation of Indian medicinal plants.** Delhi. Dr V S Parmar, Department of Chemistry, University of Delhi, Delhi.

23. Sivanandan Achary, V. **Studies on factors affecting the sorption of some toxic substances at solid liquid interfaces.** Kerala. Dr T S Anirudhan, Lecturer, Department of Chemistry, University Department of Chemistry, Thiruvananthapuram.

24. Sunil Kumar. **Modification of isotactic polypropylene by gamma radiation induced graft copolymerization.** HP. Dr (Mrs) Inderjeet Kaur, Department of Chemistry, Himachal Pradesh University, Varanasi.

25. Varghese, T L. **Polymerization of vinyl monomers in special functional group tryglyceride oil - castor oil based polyurethane systems and their characterisation.** Kerala. Dr V N Krishnamurthy, Deputy Director, Vikram Sarabhai Space Centre, Trivandrum.

26. Vinod Kumar. **Coordination Chemistry.** Delhi. Prof B S Garg, Department of Chemistry, University of Delhi, Delhi.

27. Yadav, Mahendra. **Coordination compounds of first series transition metal ions with nitrogen and sulphur donors.** BHU. Dr (Mrs) R B Rastogi, Department of Applied Chemistry, Banaras Hindu University, Varanasi.

28. Yadav, Mahendra. **Transition metal complexes of some dithioligands.** BHU. Dr N K Singh, Department of Chemistry, Banaras Hindu University, Varanasi.

Earth Sciences

1. Abul Abbas Husain. **Love-wave propagation studies of stratified earth.** BHU. Dr V P Singh, Department of Geophysics, Banaras Hindu University, Varanasi.
2. Chakraborty, Biswajit. **Some aspects of agrometeorological studies.** BHU. Prof B R D Gupta, Department of Geophysics, Banaras Hindu University, Varanasi.
3. Imtiyaz Ahmed Parvez. **Seismic data filtering and signal analysis.** BHU. Prof A Ram, Department of Geophysics, Banaras Hindu University, Varanasi.
4. Mall, Rajesh Kumar. **Development of crop-weather model of yield forecast.** BHU. Prof B R D Gupta, Department of Geophysics, Banaras Hindu University, Varanasi.
5. Rai, Suchit Kumar. **Meteorological data processing.** BHU. Dr B D S Kushwaha, Department of Geophysics, Banaras Hindu University, Varanasi.
6. Raju, Arpan Kumar. **Signal processing and seismic tomography.** BHU. Prof A Ram, Department of Geophysics, Banaras Hindu University, Varanasi.
7. Sarkar, Partha. **Prediction of earthquake.** BHU. Dr V P Singh, Department of Geophysics, Banaras Hindu University, Varanasi.
8. Singh, Gyan Prakash. **Studies in intra-annual, intra-seasonal changes in monsoonal climate.** BHU. Dr J Chattopadhyay, Department of Geophysics, Banaras Hindu University, Varanasi.
9. Singh, Lakshman. **Estimation of aquifer parameters from surface geophysical measurements.** BHU. Dr K M Srivastava, Department of Geophysics, Banaras Hindu University, Varanasi.
10. Singh, Rita. **Studies on electromagnetic scale modelling.** BHU. Dr K M Srivastava, Department of Geophysics, Banaras Hindu University, Varanasi.
11. Sinha, Ajay Kumar. **Development of interpretation techniques in deep transient electromagnetic methods.** BHU. Prof T Lal, Department of Geophysics, Banaras Hindu University, Varanasi.
12. Srivastava, Ajay Kumar. **A study on some aspects of tropospheric cyclones.** BHU. Prof B R D Gupta, Department of Geophysics, Banaras Hindu University, Varanasi.
13. Srivastava, Manoj Kumar. **Studies in atmospheric teleconnections.** BHU. Dr J Chattopadhyay, Department of Geophysics, Banaras Hindu University, Varanasi.
14. Yadav, Santosh Kumar Singh. **Analysis of gravity and magnetic data.** BHU. Dr A S K Murthy, Department of Geophysics, Banaras Hindu University, Varanasi.

Engineering & Technology

1. Awasthi, Rajesh Kumar. **Torsion theoretic and homological development of injectivity and related topics.** BHU. Dr S A Paramhans, Department of Applied Mathematics, Banaras Hindu University, Varanasi.
2. Dixit, Mahabir. **Soil reinforcement system using anchors and geotextiles.** BHU. Dr K K Jain, Department of Civil Engineering, Banaras Hindu University, Varanasi.
3. Dokania, Swarup Kumar. **Freezing/melting flows in pipes.** BHU. Dr N K Samra, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.
4. Dubey, Nagesh Kumar. **Thermodynamical study of under cooled liquids.** BHU. Dr K S Dubey, Department of Applied Physics, Banaras Hindu University, Varanasi.
5. Dumka, Deep Chandra. **Optoelectronic devices and ICS.** BHU. Dr B R Singh, Scientist E-II, Strategic Electronics Area,

Central Electronics Engineering Research Institute, Pilani.

6. Dwivedi, Sashi Kant. **Study of low frequency waves in magnetoplasma.** BHU. Prof K D Mishra, Department of Applied Physics, Banaras Hindu University, Varanasi.
7. Ghosal, Partha. **Characterization of defect microstructures in intermetallics.** BHU. Prof S Lele, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.
8. Ghosh Moulic, Ananya. **Phase stability of ordered HEP alloys.** BHU. Prof S Lele, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.
9. Govindan Potti, P K. **Studies on fracture behaviour of carbon reinforced composites.** BHU. Shri P N Subramania, Vikram Sarabhai Space Centre, Trivandrum and Dr V K Srivastava, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.
10. Gupta, Lal Bahadur. **Power system operation.** BHU. Dr G S Raju, Department of Electrical Engineering, Banaras Hindu University, Varanasi and Dr S P Singh, Department of Electrical Engineering, Banaras Hindu University, Varanasi.
11. Gupta, Pawan Kumar. **Anchored earth and combined system of soil reinforcement.** BHU. Prof R B Singh, Department of Civil Engineering, Banaras Hindu University, Varanasi.
12. Gupta, Sanjiv Kumar. **Performance of catalytic membrane reactor.** BHU. Dr K K Srivastava, Department of Chemical Engineering, Banaras Hindu University, Varanasi.
13. Jha, Amrendra Kumar. **Understanding of shear strength of silty soil by effective stress concept.** BHU. Prof V Singh, Department of Civil Engineering, Banaras Hindu University, Varanasi.
14. Mahanty, Ranjit. **Power electronic converter.** BHU. Prof A N Tripathi, Department of Electrical Engineering, Banaras Hindu University, Varanasi.
15. Mishra, Vishwambhar Nath. **IC compatible sensors.** BHU. Prof S K Srivastava, Department of Electrical Engineering, Banaras Hindu University, Varanasi.
16. Nagarjuna, S. **Dispersion strengthening in Cu and Cu based alloys.** BHU. Dr K Balasubramanian, Defence Metallurgical Research Laboratory, Hyderabad and Prof D S Barua, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.
17. Nair, Achuth Sankar S. **Symbolic computation using artificial neural networks.** Kerala.
18. Pandey, Arun Kumar. **Open channel hydraulics.** BHU. Prof K S Karki, Department of Civil Engineering, Banaras Hindu University, Varanasi.
19. Pandey, Krishna Kant. **Waves in earth and planetary atmospheres.** BHU. Prof K D Mishra, Department of Applied Physics, Banaras Hindu University, Varanasi.
20. Pankaj Kumar. **Optical effect in high speed devices.** BHU. Prof B B Paul, Department of Electrical Engineering, Banaras Hindu University, Varanasi.
21. Patel, Anand Kumar Singh. **Reliability of networks.** BHU. Prof V V Menon, Department of Applied Mathematics, Banaras Hindu University, Varanasi.
22. Qanungo, Kushal. **Hydrometallurgy of metals relevant in atomic energy.** BHU. Prof D C Rupainwar, Department of Applied Chemistry, Banaras Hindu University, Varanasi.
23. Saha, Partha. **Studies on electron beam phenomenon.** BHU. Dr P K Jain, Department of Electronic Engineering, Banaras Hindu University, Varanasi and Prof B N Basu, Department of Electronic Engineering, Banaras Hindu University, Varanasi.
24. Samchandran, D. **Development of an expert system for load forecasting and planning.** Kerala. Dr K Ramachandran, Prof,

Department of Electrical Engineering, College of engineering, Trichur.

25. Shukla, Kirti. Trip and microstripline devices. BHU. Prof R K Jha, Department of Electronic Engineering, Banaras Hindu University, Varanasi and Prof S K Srivastava, Department of Electronic Engineering, Banaras Hindu University, Varanasi.

26. Singh, Akshay Kumar. Kinetic study of reduction of oxide. BHU. Prof J S Kachhawaha, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.

27. Singh, Dhananjaya. Some studies on transverse diffusion and mixing length in open channel flow. BHU. Dr V P Singh, Department of Civil Engineering, Banaras Hindu University, Varanasi.

28. Singh, Neelam. Studies on microsensors. BHU. Dr R Dwivedi, Department of Electronic Engineering, Banaras Hindu University, Varanasi.

29. Singh, Rajesh Kumar. Thick film devices technology. BHU. Prof S K Srivastava, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

30. Singh, Rakesh Kumar. Synthesis of novel hetero-cycles and their biological activity. BHU. Dr R Singh, Department of Applied Chemistry, Banaras Hindu University, Varanasi.

31. Singh, Sanjai. Multiple criteria decision making in industry. BHU. Dr S K Sharma, Reader, Department of Mechanical Engineering, Banaras Hindu University, Varanasi and Dr J N Dube, Reader, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

32. Singh, Sanjeev Kumar. Soil structure interaction. BHU. Prof B D Nautiyal, Department of Civil Engineering, Banaras Hindu University, Varanasi.

33. Singh, Sudhir. Loud flow studies. BHU. Prof G S Raju, Department of Electrical Engineering, Banaras Hindu University, Varanasi and Dr S P Singh, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

34. Singh, Sunil Kumar. Evaluation of some parameters of blast design in coal measures. BHU. Dr J G Singh, Department of Mining Engineering, Banaras Hindu University, Varanasi.

35. Singh, Vinod Kumar. Open channel flows. BHU. Prof K S Karki, Department of Civil Engineering, Banaras Hindu University, Varanasi.

36. Srivastava, Ajay Kumar. Water pollution studies and extraction. BHU. Prof D C Rupainwar, Department of Applied Chemistry, Banaras Hindu University, Varanasi and Dr Gur Prasad, Department of Applied Chemistry, Banaras Hindu University, Varanasi.

37. Subba Rao, R V. Multi target radar. BHU. Prof D S Venkateswaralu, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

38. Sushil Chandra. Testing and evaluation of composites under specific performance conditions. BHU. Prof P C Upadhyay, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

39. Tahzibi, Khashayar. Tribological behaviour of new fibre reinforced plastic composites. BHU. Dr V K Srivastava, Department of Mechanical Engineering, Banaras Hindu University, Varanasi and Dr J P Dwivedi, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

40. Thakur, Manoj Kumar. Design considerations for the development of electronic scanning antenna. BHU. Dr B R Vishvakarma, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

41. Thakur, Om Prakash. Study of glass ceramics containing ferroelectric and super conducting phases. BHU. Dr Devendra Kumar, Department of Ceramic Engineering, Banaras Hindu University, Varanasi and Dr Om Prakash, Department of Ceramic Engineering, Banaras Hindu University, Varanasi.

42. Tiwari, Vijay Bahadur. Studies in certain areas of water resource management. BHU. Prof V B Mishra, Department of Civil Engineering, Banaras Hindu University, Varanasi.

43. Tyagi, Muni Deo. Industrial management and engineering. BHU. Shri A K Agarwal, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Anthropology

1. Chaudhry, Namita. Nutritional anthropometric study of the Punjabi adults. Delhi. Prof Raghbir Singh, Department of Anthropology, University of Delhi, Delhi.

2. Choudhary, Rashmi. A study of physical growth and physique. Delhi. Dr S L Malik, Department of Anthropology, University of Delhi, Delhi.

3. Dhar, Sucharita. One year follow-up study of physical growth and dental development of Punjabi boys and girls from 5 to 20 years. Delhi. Prof Raghbir Singh, Department of Anthropology, University of Delhi, Delhi.

4. Pande, Niharika. Nutrition anthropometry on elderly. Delhi. Prof Raghbir Singh, Department of Anthropology, University of Delhi, Delhi.

Biophysics

1. Baljinder Singh. Combined effects of lead and lithium in rat tissues. Panjab. Dr P C Mangal, Department of Biophysics, Panjab University, Chandigarh, Dr N K Ralan, Department of Biophysics, Panjab University, Chandigarh and Dr D K Dhawan, Department of Biophysics, Panjab University, Chandigarh.

Biochemistry

1. Bhattacharya, Chaitali. Filariid circulating antigens. BHU. Dr (Mrs) S Rathaur, Department of Biochemistry, Banaras Hindu University, Varanasi.

2. Elias, Merina. Investigations on cyanoglucosides of cassava. Kerala. Dr P R Sudhakaran, Prof, Department of Biochemistry, University of Kerala, Kariavattom and Dr Bala Nambisan, Scientist, Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram.

Microbiology

1. Rama Rani. Mechanism of renal tissue injury in chronic pyelonephritis and its prevention. Panjab. Dr (Mrs) Suroj Sharma, Department of Microbiology, Panjab University, Chandigarh and Prof N K Ganguli, Head, Department of Experimental Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh.

Botany

1. Dubey, Gunjan. Ecological investigation of certain plants in relation to particulate pollution. BHU. Dr B D Tripathi, Department of Botany, Banaras Hindu University, Varanasi.

2. Sanjiv Ranjan. Studies on the medicinal plants of Nalanda, District and its adjoining areas. Magadh. Dr Damodar Singh, Prof and Head, Department of Botany, Nalanda College, Biharsharif.

3. Sannigrahi, Supriya. Morphogenetic studies in tissue and organ cultures of some higher plants. BHU. Dr N C Chaturvedi, Tissue Culture Laboratory, National Botanical Research Institute,

Lucknow and Dr V S Jaiswal, Department of Botany, Banaras Hindu University, Varanasi.

4. Sen Gupta, Nabendu. Effect of Cr and lithium on cellular system of some crop plant and their interaction. BHU. Dr B K Roy, Department of Botany, Banaras Hindu University, Varanasi.

5. Shukla, Sumita. Ecological investigation of certain plants in relation to vehicular pollution. BHU. Dr B D Tripathi, Department of Botany, Banaras Hindu University, Varanasi.

6. Singh, Anupa. Plant responses to elevated levels of carbon-dioxide and sulphur dioxide. BHU. Dr (Mrs) M Agrawal, Department of Botany, Banaras Hindu University, Varanasi.

7. Singh, Poonam. Cytotoxicity of heavy metals on higher plants. BHU. Dr B K Rai, Department of Botany, Banaras Hindu University, Varanasi.

8. Singh, Satya Shila. Physiology and biochemistry of cyanobacteria. BHU. Dr A K Rai, Department of Botany, Banaras Hindu University, Varanasi.

9. Singh, Seema. A study on the interaction between Tephrosia purpurea and Parthenium hysterophorus. BHU. Prof G N Choudhuri, Department of Botany, Banaras Hindu University, Varanasi.

10. Sinha, Alok Krishna. Analysis of the life history strategies weeds of the Indo-Gangetic plains in the Indian sub-continent. BHU. Prof G N Choudhuri, Department of Botany, Banaras Hindu University, Varanasi.

11. Srivastava, Alok Kumar. Identification and characterisation of fungal siderophores and its role in biological control. BHU. Dr D K Arora, Department of Botany, Banaras Hindu University, Varanasi.

12. Srivastava, Sanjay Kumar. Nutrient cycling in a wetland community. BHU. Prof R S Ambasht, Department of Botany, Banaras Hindu University, Varanasi.

13. Tiwari, Keshav. Ecology of polluted crop fields. BHU. Dr B D Tripathi, Department of Botany, Banaras Hindu University, Varanasi.

14. Tripathi, Raghawendra Dutta. Effect of SO₂ on plants of industrial areas. BHU. Dr B D Tripathi, Department of Botany, Banaras Hindu University, Varanasi.

Zoology

1. Bawa, Preeti. Toxicity of heavy metals on reproductive organs in rat. Meerut. Dr R C Sharma, Lecturer, Department of Zoology, Meerut College, Meerut and Dr Versha Katira, Head, Department of Anatomy, LLRM Medical College, Meerut.

2. Sood, Ambrish. Studies on the ionic content, ATPase activity and myosin light chains in chick skeletal muscle under stress conditions. HP. Dr R K Malhotra, Department of Bio-Science, Himachal Pradesh University, Varanasi.

Medical Sciences

1. Chakravarthy, G Rama Ramana. Biological evolution of certain factors of basic principles of ayurveda. BHU. Prof Jyotir Mitra, Department of Basic Principles, Banaras Hindu University, Varanasi.

2. Digar, Asima. Transplantation of embryonic neuronal tissue in the adult central nervous system of rat. BHU. Prof Gajendra Singh, Banaras Hindu University, Varanasi.

3. Jain, Chandra Prakash. Preparation, characterisation and performance evaluation of elosomal delivery system for drug targeting. HS Gour. Dr N K Jain.

4. Jain, Suman. Role of basti on valaya artav dushti. BHU. Dr (Mrs) M Dwivedi, Department of Prasuti Tantra, Banaras Hindu University, Varanasi.

5. Mohanty, Chhandamayee. Histopathological study of the palatal shelves from induced cleft palate cases in rats. BHU. Prof Gajendra Singh, Department of Anatomy, Banaras Hindu University, Varanasi.

6. Shailendra. Role of indigenous drugs on timir. BHU. Prof G C Prasad, Department of Shalya Shalakya, Banaras Hindu University, Varanasi.

7. Sharma, Sadanand. Novel drug delivery systems. BHU. Dr Jagdish Singh, Department of Pharmaceutics, Banaras Hindu University, Varanasi.

8. Singh, Rahul. Base line study of coronary risk factors in urban Varanasi population. BHU. Prof V M Gupta, Department of Preventive and Social Medicine, Banaras Hindu University, Varanasi.

9. Srivastava, Anjani. Chemical investigation of annonaceous plants. BHU. Dr M Sahai, Department of Medicinal Chemistry, Banaras Hindu University, Varanasi.

10. Sudha Rani, V. Studies on some aspects of eco-chemistry of pharmaceutical importance. BHU. Dr Y Kumar, Department of Pharmaceutics, Banaras Hindu University, Varanasi.

11. Viswanathan, N Badri. Studies on chemically self-regulated insulin release system. BHU. Dr J K Pandit, Department of Pharmaceutics, Banaras Hindu University, Varanasi.

Agriculture

1. Inderjeet Singh. Studies on gametogenesis, seed development and pericarp in some Himalayan orchids. HP. Dr Sarvesh Kumar Sood, Department of Bio-Sciences, Himachal Pradesh University, Shimla.

2. Kapoor, Leena. Chromosome studies on the aphids of horticultural and agricultural crops from Himachal Pradesh. HP. Dr D C Gautam, Department of Bio-Sciences, Himachal Pradesh University, Shimla.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Ajeet Singh. Some flow and heat transfer problems in Newtonian and non-Newtonian fluids. Roorkee.

2. Arvind Kumar. A study of the properties of space of analytic and entire functions. Roorkee

3. Kamath, Shyam Shreenivasa. Some studies on graph theory: Domination parameters. Karnatak. Dr E Sampathkumarachar, Prof. Department of Mathematics, University of Mysore, Mysore.

4. Krishnan, E. The semigroup of Fredholm operators. Kerala. Dr K S S Nambooripad, Prof and Head, Department of Mathematics, University of Kerala, Kariavattom.

5. Mahto, Parmeshwar. Study of seismic waves in an initially stressed medium. ISM. Prof S Dey.

6. Nandakumaran, A K. Homogenization of partial differential equations in perforated domain. IISc.

7. Purohit, Mridula. Real and complex spline interpolation. Durgawati. Dr H P Dikshit, Pro Vice-Chancellor, Indira Gandhi National Open University, IGNOU Complex, Maidan Garhi, New Delhi.

8. Samanta, Guruprasad. Stochastic dynamical models of some predator-prey systems. Calcutta.

9. Sharda Devi. Stability analysis of some fluid dynamical systems. HP.

10. Sharma, Yogeshver Dutt. Displacement of fluids and instabilities in permeable media. HP.

11. Veena Kumari. Newtonian and viscoelastic fluid instabilities. HP.

Statistics

1. Lakshmi Manga, P. Some contributions to design and analysis of experiments with mixtures. Osmania.

Physics

1. Ajdari, Kamyar. Crystallization kinetics and annealing studies on electroless amorphous transition metal metallloid system Ni-Co-P. Roorkee.

2. Ganesamurthy, K. Nuclear response functions and quark structure of the nucleon. Madras.

3. Geetha, V. Surface oxidation studies of Al (Li) and Al (Cu) thin films. Kerala. Dr V K Vaidyan, Prof, Department of Physics, University of Kerala, Kariavattom.

4. Ghosh, Sasanka. Studies of some integrable relativistic quantum field theories in two dimensions. Calcutta.

5. Hanagodimath, Siddalingaswami Mrityunjay. Energy transfer and quenching studies in organic liquid scintillators. Karnatak. Dr G C Chikkur, Reader, Department of Physics, Karnatak University, Dharwad.

6. Hastak, Neeta Ramchandra. An X-ray absorption spectroscopic study of the local environment of Europium in some of its systems. Nagpur. Dr P C Deshmukh, Department of Physics, Nagpur University, Nagpur.

7. Jaswal, Bhupender Singh. Radiation from circular symmetric electromagnetic sources around compressible plasma column. HP.

8. Jayaraman, D. Studies on nucleation kinetics of unary and binary systems, high Tc superconductors and voids. Anna.

9. Jog, Krishnarao Narayanrao. Study of phase transition and high pressure behaviour of ionic solids. Durgawati. Dr R K Singh, Prof and Head, Department of Physics, Barkatullah University, Bhopal.

10. Mande, Sharmila S. X-ray crystallographic studies on modified nucleosides. IISc.

11. Mani, V N. Modelling of vapour phase epitaxial growth of III-V binary, ternary and quaternary materials and studies on their properties. Anna.

12. Narayanan, T. Investigations of reentrant phase transitions in quasi-binary liquid mixtures. IISc.

13. Patel, Nimesh A. A study of circumstellar silicon monoxide masers. IISc.

14. Ramalingam, A. Laser gain studies of some

aminocoumarin dyes. Anna.

15. Srinivasan, S. Investigations on the Raman and infrared spectra of polyatomic molecules. Anna.

16. Sureshkumar, P. Nucleation, growth and characterisation of high Tc superconducting single crystals. Anna.

17. Taraphder, Arghya. Theoretical studies of some models of high-Tc oxide superconductors: (I) An Anderson impurity model for core-level photo emission spectroscopy in cuprates; (II) A negative-U, extended Hubbard model for barium bismuthates. IISc.

18. Tirlok Nath. Study of electrical properties of intermetallic polycrystalline HgTe and ultra purification of mercury and tellurium. Delhi.

19. Vijaykumaran Nair, K. Mossbauer studies of the hyperfine interactions in non-cubic metals and semiconductors and investigation of the systematic trends. Kerala. Dr N Vasudevan Nair, Prof, Department of Physics, Mahatma Gandhi College, Thiruvananthapuram.

Chemistry

1. Abdul Samath, S. Synthesis, structure and reactions of metal complexes of beta-diketones. Madurai.

2. Amalendu Chandra. Theoretical studies on collective orientational relaxation, solvation dynamics and electron transfer reactions in dense dipolar liquids. IISc.

3. Arul Raj, I. Hydrogen and oxygen electrodes based on transition metals in alkaline medium. Madurai.

4. Ashvini Kumar. Synthesis and X-ray crystallographic data studies of isomers of 2-phenyl 4-aryldine -5 (4H)-oxazolones. Osmania.

5. Bhargava, Sandhya. Synthesis and electrochemical investigations of some biologically important compounds. Roorkee.

6. Bhoyare, Vasantlal Kerulal. Determination of rare metals by solvent extraction and spectrophotometry. Nagpur. Dr S P Sangal, Prof, Laxminarayan Institute of Technology, Nagpur and Dr S B Ghole, Laxminarayan Institute of Technology, Nagpur.

7. Jain, Ravindra Kumar. Chemical investigation of some Indian medicinal plants. HS Gour. Dr (Mrs) Savitri Devi Shrivastava, Department of Chemistry, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

8. Karunamay Nath. Studies on the physico-chemical properties of capsular polysaccharide of Klebsiella. Calcutta.

9. Mittal, Alok. Studies on electro-chemical behaviour of some organic molecules of biological importance. Roorkee.

10. Palaniappan, S. Spectroscopic studies on polymeric charge-transfer complexes-poly (vinyl pyridine) donors with low molecular weight acceptors. IISc.

11. Patel, Pankaj Kumar Parshottambhai. Studies on polychelates. Patel. Dr M N Patel, Prof, Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

12. Patil, K C. Contributions to the chemistry of hydrazine derivatives and finite oxide materials. D. Sc. IISc.

13. Purohit, Manish. Synthesis of some novel compounds derived from heterocyclic ring and evaluation of their biological activity. HS Gour. Dr S K Shrivastava, Department of Chemistry, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

14. Rastogi, Archana. Wittig reaction on aleuritic acid derivatives in the synthesis of 1-triacontanol, a plant growth regulator and (Z)-9-dodecenyl acetate, the grape berry moth pheromone. Delhi.

15. Sahadev. Potentiometric studies on the complexation behaviour of biologically active O-hydroxy-naphthaldehyde derivatives. Delhi.

16. Satyanarayana, Tatakuntla. Kinetics and mechanism of

oxidation of BIS (2, 2', 6', 2'' - terpyridine) Iron (II) and BIS (2, 4, 6 - tripyridyl - 1, 3, 5 - triazine) Iron (II). Andhra.

17. Shrivastava, Alka. Catalytic activity of vanadate ions in the epoxidation of some unsaturated organic compounds by hydrogen peroxide. HS Gour. Dr G L Agrawal, Department of Chemistry, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

18. Singh, D K. Topics in physical organic chemistry. IISc.

19. Sita, C. Synthesis and structural elucidation of some novel energetic metal complexes of aryl mercapto triazoles and tetrazoles: Their solution and thermal studies. Osmania.

20. Subramanian, G. Studies in molecular rearrangements. Madras.

21. Suhail Ahmad. Chemical and spectral studies in modified steroids. AMU. Dr D Shaffiullah, Prof, Department of Chemistry, Aligarh Muslim University, Aligarh.

22. Sujatha Devi, P. Low-temperature preparation and characterization of the perovskite lanthanide chromites and related oxides. IISc.

23. Sundarababu, G. Radical cyclisation routes to terpenes and furans. IISc.

24. Surekha Reddy, M. Kinetics and mechanism of oxidation of some organic compounds by CAT in acid medium. Osmania.

Earth Sciences

1. Abdul Rahman. Petrology and geochemistry of Bundelkhand granites around Mohoma, Distt Hamirpur, U P. AMU. Dr S M Zainuddin, Reader, Department of Geology, Aligarh Muslim University, Aligarh.

2. Harbhajan Singh. Morphology and facies analysis of sediments of the Kosi Megafan. Roorkee.

3. Mathai, Thomas. Geology, structure and geochemistry of the Achenkovil tectonic zone, Kerala, India. Kerala. Dr P T Roy Chacko, Lecturer, Department of Geology, University of Kerala, Kariavattom.

4. Md Abdul Haleem. Geological and hydrogeological investigations in parts of Godavari valley in Sathupally and Ashwaraopet Taluks of Khammam District, Andhra Pradesh. Osmania.

5. Mohammad Burhanuddin. Sedimentology stratigraphy and paleogeography of lower Gondwana formations of the Paloncha Neck and vicinity, Godavari valley, Andhra Pradesh. Osmania.

6. Mohan, P M. Studies on the texture, mineralogy and geochemistry of the modern sediments of the Vellar estuary. CUST. Dr K T Damodaran, Prof and Head, Division of Marine Geology, School of Marine Sciences, Cochin University of Science and Technology, Kochi.

7. Narsimulu, C. Hydrogeological investigations in Manjira River sub basin, Medak District, A P, India. Osmania.

8. Raghuveera, K S. Mineralogy, geochemistry, genesis and ore beneficiation studies of chromite deposits of Jambore Area, Nuggehalli Schist Belt, Karnataka. Bangalore. Dr A M Pathan, Prof, Department of Geology, Bangalore University, Bangalore.

Engineering & Technology

1. Alex, T K. Accuracy improvement of infra-red earth sensors using on-board correction. IISc.

2. Gaur, Bhupendra. Corrosion behaviour of steel in aqueous environment of bleach section in paper industry. Roorkee.

3. Ghosh, Asok Kumar. Studies on surface properties of semi conductors. Calcutta.

4. Goel, N K. Modelling for flood flows. Roorkee.

5. Gorasia, Jaisukhlal Nagji. Computer aided design of capillary tubes of different configuration. Durgawati. Dr R K Dave, Prof and

Head, Department of Mechanical Engineering, Government Engineering College, Jabalpur.

6. Gopalan, R. A study on hygrothermal effects on advanced composites and adhesively bonded joints. IISc.

7. Gupta, A K. Studies on mathematical modelling of fire dynamics. Roorkee.

8. Hari Babu, Kambhampati. Spread spectrum communication systems: A proposal for frequency hopping - direct sequence hybrid system. Andhra.

9. Inamdar, A K. A numerical study of radiative transfer processes in the atmosphere. IISc.

10. Krishna Murthy. Evaluation of road pavements for riding quality. Bangalore. Dr C E G Justo, Chairman, Department of Civil Engineering and Dean, Faculty of Engineering, Bangalore University, Bangalore and Dr M K L N Shastry, Prof, Department of Civil Engineering and Principal, U V C E, Bangalore.

11. Mahmood Yahyai. Aerodynamic interference in tall buildings. Roorkee.

12. Pal, Sudebkumar Prasant. Weak visibility and related problems on simple polygons. IISc.

13. Pandey, S N. Effects of reservoir environment and polymer characteristics on enhanced oil recovery by polymer flooding. ISM. Prof S Srinivasan.

14. Patel, Devasibhai Punjabhai. Application of cascade theory in design of centrifugal and mixed flow pumps. Patel. Prof C S Shah, Ex-Prof and Head, Department of Mechanical Engineering, B V Mahavidyalaya, Vallabh Vidyanagar.

15. Peethambaran, N R. Studies on vulcanization, rheology and reinforcement of natural rubber latex with special reference to accelerator combinations, surface active agents and gamma irradiation. CUST. Prof (Dr) A P Kuriakose, Department of Polymer Science and Rubber Technology, Cochin University of Science and Technology, Kochi.

16. Poudel, R K. Effect of capillarity on the behaviour of test-plates on sands. Roorkee.

17. Prabhu, K Narayan. Investigation of heat transfer at the casting/die-wall interface during solidification of aluminium base alloys. Mangalore. Dr T S Prasanna Kumar, formerly Prof, Department of Metallurgical Engineering, Karnatak Regional Engineering College, Surathkal.

18. Rajeswari, B. Wing body configurations with segmented flaps. IISc.

19. Ravi Shankar, A U. Capacity planning of domestic airline passenger services. Roorkee.

20. Ray, Arjun Sarathi. Aerodynamic investigation of a mixed-flow pump. IISc.

21. Sagar, G. On task allocation methods for distributed computer systems. Roorkee.

22. Saksena, S B L. Analysis and performance improvement of inductive transducers and thermistors. Roorkee.

23. Sastry, Gunturi. Effects of mechanical conservation measures on runoff and sediment losses from small agricultural watersheds. IISc.

24. Singh, S P. Surface characterization of printing papers. Roorkee.

25. Srinivasan Potti, M G. Boundary layer transition with and without lateral divergence. IISc.

26. Suppiah, S. Static and dynamic analysis of earth and rock-fill dams. Roorkee.

27. Syed Mohammed Ashraf. Phase equilibrium and activity coefficient. Osmania.

28. Vinod Kumar. Transformations in some air cooled Fe-Mn, Cr-Cu corrosion resistant white irons. Roorkee.

EDUCATION NEWS INDEX

A list of select articles and editorials on Education from newspapers received in the AIU Library during October, 1991

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- Daniel, J Christopher. Value of 'peace'. *The Hindu* 8.10.91.
 Goswami, Dibya Hash. Value - knit education. *The Assam Tribune* 13.10.91.
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- COMPETITIVE POPULISM (Editorial). *Indian Express* 2.10.91.

- CULTURAL BATTLE (Editorial). *Free Press Journal* 1.10.91.

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- Kamath, M V. Job policy inimical to fast growth. *Free Press Journal* 10.10.91.

- Kaul, H N. Mandal again on the centre stage. *The Assam Tribune* 25.10.91.

- Krishna, Raghbir. Mandal: Self-defeating idea. *Free Press Journal* 29.10.91.

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- Sadhu, Arun. Reservation policy vague. *Free Press Journal* 1.10.91.

- Shastri, P D. Let merit be the only criteria. *The Tribune* 8.10.91.

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- Thakur, B N. Job reservation: New formula fair. *The Hindustan Times* 31.10.91.

- Venkatesan, V. Mandal: In defence of economic criteria. *The Times of India* 8.10.91.

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- Viswam, S. Out-mandalising the Mandal formula. *Deccan Chronicle* 3.10.91.

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- Hazarika, Jatin. Human development index. *The Assam Tribune* 24.10.91.

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- Barman, J N. Provincialisation of colleges. *The Assam Tribune* 1.10.91.

- Krishnakumar, R. Higher education: Changes in the offing? *The Hindu* 27.10.91.

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- Tewari, C P. Crisis of management. *The Hindustan Times* 9.10.91.

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- Arulandram, H G S. Futurology as an academic discipline. *The Hindu* 22.10.91.

- Maini, Cookie. Teaching of history: Urgent need for reform. *The Tribune* 6.10.91.

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- Advani, Sangita P. Whose language is it, anyway? *The Times of India* 6.10.91.

- Bordoloi, Utpal. Using Sanskrit to fight the church. *Deccan Herald* 6.10.91.

- Hammond, Norman. Language began 40,000 years ago. *The Statesman* 14.10.91.

- Inder Pal Singh. Sikhs in Singapore. *The Tribune* 20.10.91.

- RAW DEAL for Urdu (Editorial). *The Tribune* 29.10.91.

- Salgaocar, Dattaraj V. Include Konkani in the 8th schedule. *The Times of India* 19.10.91.

- Sud, K N. Status of Urdu: Neglect in land of birth. *The Statesman* 22.10.91.

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Joshi, Rita. Women's colleges: Producing stereotypes ? *The Hindustan Times* 12.10.91.

Vanita, Ruth. Providing options. *The Hindustan Times* 26.10.91.

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Chandna, R C. High female literacy can curb birth rate. *The Tribune* 18.10.91.

Jain, G P. Illiteracy: Battle of Panipat. *The Hindustan Times* 11.10.91.

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Shafi, Zeenat S. Illiteracy: Our sin and shame. *National Herald* 20.10.91.

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Dandapani, S. Of prime concern. *The Hindu* 1.10.91.

Frankel, William. Parental choice of schools 'supreme'. *The Statesman* 26.10.91.

GOADING TO school (Editorial). *Deccan Herald* 31.10.91.

Mehra, Shekhar. School: A back-breaking experience. *National Herald* 20.10.91.

Nayar, T V G. To reduce the book load. *The Hindu* 29.10.91.

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Anantharaman, T R. Steady growth of institute :Thapar Institute of Engineering and Technology. *The Tribune* 7.10.91.

Chakrabarti, Ashis. Whither Visva-Bharati ? *The Hindustan Times* 23.10.91.

Salim Arif. Decline and fall of Hindi theatre: National School of Drama. *Free Press Journal* 20.10.91.

BIOGRAPHICAL PROFILES

Haque, M A. Remembering Sir Syed Ahmed Khan. *Patriot* 17.10.91.

Sharma, Ashok. Writing for a noble cause. *The Tribune* 13.10.91.

Syed Nooruzzaman. Sir Syed's dream. *The Tribune* 13.10.91.

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(2) PRINCIPAL SCIENTIST (Terrestrial Ecology)

Ph.D in any branches of Life Sciences, based on work in plant or vertebrate field ecology. Total 15 years' research experience. **Desirable** : Working experience in interpretation of satellite imagery, rapid assessment of habitats, vegetation mapping, well-versed in the latest techniques of field ecology.

(3) PRINCIPAL SCIENTIST (Wetland Ecology)

Ph.D in any branches of Life Sciences or Environmental Chemistry, based on topic related to wetland ecology. Total 15 years' experience. **Desirable** : Working experience in the studies on wetland ecosystem, and pollution. Experience in the field and laboratory techniques required for wetland studies.

Job requirements for posts 1,2 and 3.

The incumbent should be dynamic, capable of setting up and heading respective division, formulating research programmes and guiding, coordinating and evaluating research programmes. Responsibility also involves giving leadership to multidisciplinary research projects and developing interdivisional programmes and linkages in research with other organisations. Should also be capable of developing and undertaking education and training programmes.

(4) SENIOR STATISTICIAN (One Post)

Scale of Pay : 4500-150-5700

Age : Below 45 years

Ph.D in physical, biological or environmental sciences on a topic related to mathematical ecology. Total 15 years' experience in analysis of biological data. **Desirable** : Experience in designing statistical basis for ecological/behavioural research projects and also giving support for the analysis of data. Should be strong in computer analysis.

Job requirement : The incumbent should be dynamic, capable of providing statistical support while designing research programmes of all the research divisions and actively help in the analysis of data. Should set up the division as a common facility and formulate and execute research programmes of its own. Should also develop and coordinate interdivisional programmes.

(5) SYSTEM ANALYST (One Post)

Scale of Pay : Rs 3700-125-4700-150-5000

Age : Below 40 years

Qualification and Experience : Ph.D in physical, biological or environmental sciences on work related to ecological system analysis or modelling. Total 10 years' experience. **Desirable** : Working experience in modelling of natural ecosystem.

Job requirement : Should help designing field projects and analysis data of various divisions and modelling of systems.

(6) LIBRARIAN (One Post)

Scale of Pay : Rs 3000-100-3500-125-4500

Age : Up to 35 years.

Qualification and Experience :

Ph.D or M.Sc in library science. 5 years' experience in the case of former and 8 years in the latter as librarian in a reputed organisation (relaxable in exceptional cases). **Desirable**. Experience in organising and developing library.

Job requirement : The incumbent should be dynamic, well-versed in the modern library system, should design and set up library catering the needs of all the divisions of the Centre. Should organize literature reference system, establish interlibrary linkage at national and international levels.

(7) LIBRARY ASSISTANT (One Post)

Scale of Pay : Rs. 1640-60-2600-EB-75-2900

Age : Up to 28

Qualification : B.Sc. Library Science. One year experience in similar post. **Desirable** : Experience in typing and word processing.

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Age : Below 30.

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NOTE

- (1) In case suitable candidates are not available for the posts 1,2, and 3, the next lower grade (Senior Scientist Rs.3700-125- 4700-150-5000) may be offered. Candidates should indicate whether they wish to be considered for the same.
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Editor :
RUTINDER SINGH

Examining Criteria of Quality of Education

14 OCT 1991

P. T. B. I., MYSOR

B.K. Passi*

Introduction

Recently, I participated in a national seminar meant to review an interesting research study which was undertaken by NIEPA, New Delhi and IIEP, Paris. The research study entitled "Quality of basic education services in India" was discussed by selected researchers and educational administrators. Besides this, we also discussed the concept of quality of educational services, stages of educational developments vis-a-vis educational policy implications. I wish to share my views and experiences.

Viewpoints about Quality of Education

Depending upon specific educational conditions, a wide variety of viewpoints about quality of education have been formulated. Many thinkers and agencies of education have evolved their own perspectives about quality of education. Educational philosophers, political parties, social workers, state governments, educational practitioners, parents, employers, religious groups, youth groups and many others formulate their own criteria about quality of education. I believe that criteria of quality education is subjective; and it cannot be context free. In fact the levels of economic and educational development of a given community determine the nature of criteria of quality education. Four viewpoints are illustrated here.

Administrator's Viewpoint

An administrator derives his viewpoint about the criteria of quality of education from assigned roles of a teacher within a classroom, of a headmaster in a school, and of an inspector in the school system. Ordinarily, the quality of education is represented by the acquisition of 3R's, mastery of school subjects, health care and games, formation of accepted habits, provision of co-curricular activities, etc.

Economist's Viewpoint

An economist would derive his viewpoint about the criteria of quality of education from production of useful manpower like engineers, doctors, agriculturists, technicians, clerks, etc. This viewpoint is mostly guided by the contribution of education to GNP. It carries on the usual economic input and output analysis.

Sociologist's Viewpoint

A sociologist derives his viewpoint about the criteria of quality of education from his cherished development of new sets of values ranging from affluent society to renunciation of family, ranging from rugged individualism to subservience to society, etc. His criteria about quality of education is derived from considerations extraneous to existing framework of schools.

Psychologist's Viewpoint

A psychologist derives his viewpoint about the criteria of quality of education from the provision of prerequisites of personality development

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through an humanistic approach. Development of potentialities, need satisfaction, fulfilment of aspirations, and enhancement of happiness of the child are his guiding principles for designing school structures, educational processes, and contents of quality education.

Synthesis

On examining these viewpoints, one would discover equally appealing relevance in each one of them. Each viewpoint is justifiable. I would assert that partial and isolated viewpoints about criteria of education are futile. Hence I believe that these viewpoints are complementary. Therefore, I would suggest that we should develop a holistic viewpoint about the quality of education.

If education is viewed as a contextual endeavour does it mean that criteria about the quality of education will have to be unique and temporary? Does it mean that researchers will go on studying educational contexts and will repeatedly go on formulating unique sets of criteria about quality of education? This exercise will be too cumbersome. We may fail to theorize about quality of education. But if one finds an underlying continuum about the quality of school education, then the task of theorizing will be easy and much more meaningful.

While keeping in view the phenomenon of quality of basic education services, a very useful research study has been conducted by NIEPA and IIEP. An interesting research design was employed. It covered five graded locales chosen from five different levels of development. These were: (a) underdeveloped tribal area, (b) underdeveloped rural area, (c) developed rural area, (d) semi-urban town, and (e) urban developed area. These locales were graded on economic development. The basic education services in the light of contextual variables were studied.

I visualize an alternative approach. This alternative approach demands that one should: (a) conceive a continuum about the stages of development of quality of school education; (b) select locales for depth case study for diagnosis, and remedy; and (c) work out probable, preferable and plausible futures having workable educational plans. I feel that the most difficult stage is to agree upon the stages of development about the quality of schools. The following four stages of development as suggested by C.E. Beeby may be considered and refined for further studies. Naming of these stages in terms of rooting, stemming, flowering and fruiting has been suggested by me.

Four Stages of School Development

There are a few questions which are bothering my

mind. Can we work out composite scales as indicators for identifying and categorizing schools into developmental stages? Do these stages of development yield an hierarchy? Can the process of development skip these stages? To what extent can one enhance the process of development of these stages? The work of Beeby is handy for some of these questions.

Four stages of development of school system are being described in terms of nomenclature of development, type of teachers, and school characteristics. The four stages are: 1) rooting stage or dame stage, 2) stemming stage or formalism stage, 3) flowering stage or transformation stage, and 4) fruiting stage or meaning stage.

Rooting stage or Dame stage

- Dame : Stage 1
- Teachers: Ill-educated, untrained,
- School characteristics: Unorganized, relatively meaningless symbols; very narrow subject content – 3R; very low standards; memorizing is all-important.

Stemming stage or Formalism stage

- Formalism : Stage 2
- Teachers: Ill-educated, trained
- School Characteristics: Highly organized; symbols with limited meaning; rigid syllabus; emphasis on 3 R's; rigid methods – "one best way"; one textbook; external examinations; inspection stressed, discipline tight and external; memorizing heavily stressed; emotional life largely ignored.

Flowering stage or Transformation stage

- Transition : Stage 3
- Teachers: Better-educated, trained
- School characteristics: Roughly same goals as stage 2, but more efficiently achieved; more emphasis on meaning, but it is still rather "thin" and formal; syllabus and textbooks less restrictive, but teachers hesitate to use created freedom; final leaving examination often restricts experimentation; little in classroom to cater for emotional and creative life of child.

Fruiting stage or Meaning stage

- Meaning : Stage 4
- Teachers: Well-educated, well-trained
- School Characteristics: Meaning and understanding stressed; somewhat wider curriculum, variety of content and methods; individual

(Contd. on page 7)

Is the Debate Over 'Political Correctness' Unnecessary?

Philip G. Altbach*

Lionel S. Lewis**

On one side of the often acrimonious debate about 'political correctness' and the sanctity of the traditional curricular 'canon' are faculty who would like their teaching to have a liberalizing influence on the attitudes and values of American college students. The other side is concerned that these humanists will be successful, that those who take a certain ideological line in the classroom will impose a dubious worldview on students. The latter are, at present, the most vocal. Conservatives like Dinesh D'Souza and Charles J. Sykes are convinced that the left has captured the curriculum and that students are being subjected to the Politically Correct radical ideology of the campus left. Sykes, for example, reminds us about the "the distinction between teaching and indoctrination; the abyss that separates the Socratic method from propaganda." The traditionalists have pitted themselves against those whom they describe as radicals who worry about the rise of racism on campus and a general intolerance and separatism among students. These faculty have become intensely involved in rethinking the curriculum and adding various courses dealing with multiculturalism, minority perspectives and human relations in an effort to influence the attitudes and values of students.

Everyone should relax. The wangling is unnecessary if the concern is about changing or safeguarding the social attitudes or civility or character or ethics of students. For the most part, students are pretty well inoculated against ideological and intellectual currents. The fact is that students are only marginally influenced in terms of attitude change, politics or broader societal perspectives by their experiences in higher education. There is little doubt that students do learn as a result of going to college, but they remain remarkably untouched in terms of attitudes and values by academic experiences.

A new book reminds us of the illusory nature of attitude change on campus. Earnest T. Pascarella and Patrick T. Terenzini, following in tradition of earlier

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studies, have summarized the massive but not very conclusive research on students in *How College Affects Students* (Jossey-Bass, 1991). Their survey of 2,600 studies carried out in the last two decades on American students tells us that college has only a modest and mostly ill-defined impact on students. And these two authors are not the first to look at student change and not find much. Back in 1957, Philip Jacob found that students were hardly changed by their collegiate experience. In 1969, Kenneth Feldman and Theodore Newcomb were more optimistic about college impact, but their massive synthesis did not come up with convincing or unambiguous evidence. One could add the annual surveys of American college freshmen done by UCLA and the American Council on Education. Although freshmen in 1991 may not see the world precisely as freshmen did in 1971, throughout individual college careers there is remarkable stability in attitudes toward politics, life-styles and ideology. To be sure, there was some radicalization in the 1960s, a modest although noticeable conservative trend in the Reagan years and most recently there is evidence of some resurgent liberalism among students. But students come to the campus with these predispositions. As entering freshmen during the Reagan years, students had their sights on professional degrees and careers.

Just what does college do for students? The academic experience imparts knowledge — students seem to learn something in college. If they use what they learn, they retain it. College graduates also benefit economically from having obtained a university degree. Studies indicate that those with a degree earn more than their counterparts without one. The skills and knowledge, and most particularly the discipline, that are learned in college are valued by employers—we know this because employers pay more for college graduates.

But when it comes to attitudes and values, the evidence is less persuasive. For example, the new Pascarella and Terenzini study notes that the net effects of college on attitudes and values on the following items are either unclear or small: social liberalism, political liberalism, civil rights and liberties, secularism and modern gender roles. These are precisely the areas which are so bitterly contested today. If a wealth of

evidence shows that over the past two decades a college education has not greatly affected the attitudes and values of students, perhaps educators are spending too much time on attempting to manipulate the curriculum with the idea of changing attitudes. We should, finally, remember that the much studied women from Bennington College, who were saturated with New Deal ideas in the 1930s, were not discernibly different, when compared with their sisters and other close relatives a decade later. Spouses and children, community activities, and social class were clearly more salient than vaguely remembered Keynesian theory and liberal ideas imbibed on campus.

All this leaves us with several important questions. Why do the attitudes and values of students change over time? Why has there been a deterioration in racial and ethnic relations? And what should the academic community do to improve what is from all accounts a problematical situation? Clearly, there are differences in college students over time. During the 1960s, students became more liberal and student choices of majors reflected a concern with social activism and service. For example, classes in sociology were full; faculties doubled or tripled in size. Later, in the 1970s and 1980s, students of the "me-generation" flocked to fields, such as law and business, that would yield high incomes. Service-related majors or those which did not promise instant economic gratification languished.

We argue that student generations change because young people are affected by the same societal trends and conditions as the rest of the population. After the 1960s, students were buffeted by the economic uncertainties and declining job market of the 1970s and later by the conservative ethos and instant gratification ideology of the Reagan years. It is not surprising that the campus was affected by these basic economic and social factors. In the past few years, cutbacks in higher education and a tough job market have led to worries on campus. Further, "Willy Hortonism" has combined with real fears and tensions to produce a deterioration in campus race relations. Moreover, opposition in high places to affirmative action, quotas and other efforts to ensure racial equality and recent decisions by the Supreme Court signal significant change. It is becoming more respectable in American society to blame minority groups not only for society's ills but also for one's own individual problems. In college and universities across the country many white students see affirmative action and other programs favoring minorities as hurting them — a zero-sum game. They feel threatened by admissions programs that seemed to favor someone else; they believe that the bulk of student aid is going to others

more favorably placed. Not surprisingly, many college students buy into these new attitudes and values. They learn them at home and believe them before having attended their first college lecture.

What, then, should colleges and universities do? The effort to marry the curriculum to social and attitude change would seem to be fruitless. The debate about the curriculum should be based on questions about what knowledge is intrinsically important and what is useful in an increasingly complex and technologically-oriented society. What is worth knowing? What do we need to know? Perhaps the "core curriculum" proponents who devised the Chicago "Great Books" program or the Columbia general education core were right. They focused on what they felt was important to learn. It should be kept in mind that these core programs were not static — they changed as ideas about knowledge expanded and society presented new challenges. Thus, a broadened concept of the role of minorities in American life and a multicultural approach to history and society would not be inimical to a coherent curriculum.

Our point is that American higher education has been led astray by the idea that the curriculum, the impact of professors and the "collegiate experience" changes attitudes. The evidence shows that these do not significantly alter student ideologies; it is a conceit to believe otherwise. Once this is recognized, the heat can be lowered on the curriculum debate. Political correctness will lose much of its salience and the right will be able to stop worrying about students being brainwashed. We can focus on what is important.

Improved race relations and a greater degree of tolerance on campus will not come from restricting freedom of expression or mandatory human relations courses. American colleges and universities are an integral part of American society — so far as there are social, racial and economic tensions in society, these will be reflected on campus. How could it be otherwise? The best that higher education can do is to ensure a stimulating environment for learning, study and research.

To Our Readers

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

Comprehensibility of Text

A Pedagogical Perspective

U.S. Chaudhari*

The language system is a totality. We hear it, speak it and respond to it all of a piece and all at once. The aim of reading instruction is to approximate this totality of intake visually, through mastery of the mnemonic graphic system. To comprehend printed matter, the reader must perceive entire language structures as wholes — as unitary meaning bearing patterns (Lefevre, 1964).

The textbook is a textbook by virtue of the principles which control its selective organization of subject matter. The text-material is also called 'psychologized' material because it takes care of the readiness, interests and needs of the learners or readers.

A text is generally defined as a coherent written message. The content, the structure or organization for presenting that content, and the situational constraints for reading are important determinants of comprehension.

Ambruster and Anderson (1981) have defined a "considerate" text as one that incorporates a concern for :

- (a) *Structure* : it has a discourse structure that best conveys the information purpose;
- (b) *Coherence* : this makes the relationships among ideas clear enough, so that there is a logical connection from one idea to the next;
- (c) *Unity* : it addresses one purpose at a time; and
- (d) *Audience appropriateness* : it fits the knowledge base of the reader.

One factor affecting learning from text is "structure". Structure refers to the way ideas are connected together in logical organization pattern. Research has shown that better organized text, and the text that makes the organization clear to the reader increases the likelihood of the readers' understanding, remembering and applying information learned from the text (Meyer, 1979).

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Another characteristic of text that influences learning outcomes is 'local coherence', also called 'cohesion' by linguists (Halliday and Hasan, 1976). Local coherence is achieved by several kinds of simple linguistic links or ties that connect ideas together within and between sentences. Among the most common links are various forms of reference (e.g. pronoun, anaphora etc.) and conjunctions or connectives (e.g. and or, but, because, however etc.). Research has established the importance of cohesion in understanding and remembering text. Also, children prefer to read, read faster, and have better memory for sentences connected by explicit conjunctions, particularly causal connectives than sentences in which the conjunction is left to be inferred.

Characteristics of the content (ideational and linguistic) itself also affect learning and comprehension from reading. Kintsch and his colleagues have shown that one of these characteristics — 'idea density' — contributes to reading difficulty. For example, Kintsch and Keenan (1973) kept text length constant while varying the number of ideas in text. They found that reading time was more a function of the number of propositions (ideas) than the number of words. Kintsch *et al* (1975) showed that reading times were longer and recall less for text with many different word concepts. In other words, it is easier for readers to process and retain in memory a proposition built from old familiar elements than process propositions which introduce new concepts into the text.

Vocabulary and Meaning

Reading specialists who advocate fusing of reading skills with content, have identified word recognition, association of meaning with pointed symbols, literal comprehension, critical analysis, and evaluation as reading comprehension skills. According to most of them word difficulty and sentence complexity determine the appropriate reading level of the text. It is probably easier for students to make their way through a text that has common place words and short sentences. "Books do not have to be bad literature" says E.L. Thorndike (1934), "but the Vocabulary and sentence

structure must not thwart comprehension of what the book tells, and that must be something that the pupil cares to be told."

The most frequent advice from researchers in recent years emphasizes that meaning is largely gained from context. School children double their vocabulary between third and seventh grade (Jenkins and Dixan, 1983), and it is assumed that this gain occurs through multiple exposures in context. But researches have also revealed that much of the child's vocabulary is not used in textbooks in particular and school-communication in general.

A typical word does not have just a meaning; it has a cluster of meanings Each of these senses of the word is appropriately used in certain contexts (Barrett, 1981). Whorf (1956) has very interestingly put forth this point by saying that "the meaning of a word is less like a dollar bill with a fixed amount than like a blank cheque to be filled in as required."

Recognition and meaning are two interrelated aspects of the problem of reading vocabulary. Meaning aids recognition and in turn, accurate, rapid recognition of familiar words assist in securing the meaning of a new word in a sentence. The possession of a rich fund of word meanings is a prerequisite to adequate comprehension and interpretation in reading. Meanings grow out of the personal experience and the social situation of the child. Arthur I Gates is of the view that word concepts or word meanings are built up in a variety of ways. In the first stage, as in early infancy, words are given meanings by being associated with something, situation, event or experience.

Since the child builds his meanings out of his experience, a stimulating environment affects favourably the growth of vocabulary. The teachers should plan school enterprizes to compensate for the lack of experience of children with meagre background. They should also attempt to arouse student's curiosity for words and their meanings through suitable devices and aids.

It is said that a textbook is 'a teacher-in-print', but certainly it is not the whole of the teacher. An alert and informed teacher can modify the influence and make up for the deficiencies and drawbacks of a text book to the advantage of the pupil. In no circumstance, a textbook be allowed to act as 'pied piper' for the teacher. Therefore a school teacher should keep the following points in mind to assist his pupils to make the best use of the text materials.

1. A reading or content teacher should see vocabulary development as a necessary part of the total programme in reading language and thinking, but not as an end in itself.
2. He should adjust the reading and content programme to the child's vocabulary, both as to word recognition and as to word meaning.
3. The programme fosters a sense of responsibility on the part of the child for checking the meanings of words and for learning to recognize words independently.
4. Provide time and opportunity for much free conversation on children engaged in small group activities. Encourage children to talk informally about out of school situations. Provide rich language experiences in addition to discussions and conversation, such as, listening to the teacher tell or read stories and poems, engaging in dramatic or representation play; retelling and dramatising stories.
5. Use instruction talk and procedures that will contribute to clarify concepts. Interest children in words by discussing specific words appropriate to an occasion.
6. Provide consciously for the organization and extension of meaning. Young children can illustrate words and sentences, and the subsequent discussion can give them insight into various meanings of a word.
7. Skimming a selection for difficult words and preteaching those words through appropriate exercises.
8. Practice in various generalized abilities such as : 'word analysis' to improve accurate word perception, word derivation and word-root analysis to help with word meanings, use of context clues, phonetic clues, structural clues, and the use of dictionary for aid in obtaining both word pronunciation and word meaning.

Thus, in essence, it can be now said that comprehensibility of text is a meaning getting or 'meaning - winning' ability. It is a function of vocabulary, sentence structure, organization, attention, and mental processes like memory, comprehension, application, analysis, synthesis and evaluation. Questions play a role in comprehensibility of text as they put a cognitive demand on the reader to process information attentively. Researches on interspersed questions in text have shown that post questions are superior to pre-question in learning and comprehending from text.

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Examining Criteria of Quality of Education

(Contd. from page 2)

differences catered for; activity methods, problem solving and creativity; internal tests; relaxed and positive discipline; emotional and aesthetic life, as well as intellectual; closer relations with community; better buildings and equipment essential.

Policy Implications

While keeping in view the research findings of the study conducted by NIEPA and IIEP, how can we use the concept of stages of educational development for working out policy implications? During this seminar we found that this exercise is quite difficult. We have known that our researchers are not well equipped for working out action plans for the field problems. We also know that our administrators are in a hurry to play with the system. Unfortunately, I also realized that many of us do not have enough faith in the research studies. Therefore, the task to use research findings for educational development to improve quality of education was quite complicated.

Recently my revered teacher, Professor M.B.Buch had guided a number of workshops entitled "What research says to teachers?" One of my doctoral students is working out action plans for developing creative thinking on the basis of research studies conducted in India? The task is difficult and I submit my comments as below.

Policy implications are dependent upon the size of the school system and the diversity of its units. Our

school system is one of the largest and the most diverse in the world. Diversity of our schools is evident in terms of many aspects, such as, background of parents and local community, school manifesto, management styles, physical facilities, nature of teachers, characteristics of students, curriculum variations, quality of textbooks, nature of examinations, co-curricular activities, and so on.

It is painful to note that in spite of this complexity and diversity of our school system, we are imposing uniform and standardized solutions through bureaucratic procedures. In spite of our grave problems, we have yet not thought of introducing dedicated and continued research studies in school education. In India, dedicated research is neither encouraged by the state nor our professionals have yet shown any relevant initiative over the period. As a result of this apathy to research, we have depended more on the recommendations of committees and commissions for improving education. Faith in research has to be created.

Conclusions

In this national seminar I was happy to note that our educational administrators were willing to look into a research study for formulating policy implications in a more systematic way. I wish that this culture is further reinforced. To future researchers, I wish to suggest that alternative methodologies of conducting research in the area of quality of education should also be pursued.

Need for Training in Educational Technology

R. Krishnamurthy*

Communication is the keynote of education and it is the job of the teachers to adopt modern modes of communication to achieve their mission successfully. In other words, when we say the job of the teachers is to seek ways and means of making the contents of their textbooks or course materials relevant and meaningful and of interest to students while learning, we mean the technology to aid them in their pursuit. There is no universal teaching method that could be cited as an ideal system since subject to subject, discipline to discipline, country to country vary on the mode of teaching due to local conditions. What was once a vocal communication and later talk and chalk method in classrooms, we find this still continuing though there are advanced methods and tools to suit modern times. Tradition seldom gives way to new thoughts and innovations but continues with vigour. One reason may be the fear of the economics of the cost of teaching with new avenues. Yet we are ahead and the very existence of a discipline like Educational Technology in many universities and technical institutions is the testimony. Audio-Visual(AV) methods are finding place in teaching to a certain extent though they have not attained their rightful place.

Audio-visual technology is more powerful than conventional methods, for teaching, training courses, and transfer of technology activities. But its application has not been found very popular in colleges, university departments, for teaching even now. By audio-visual we mean the simplest form of it, namely projection of 35 mm slides and overhead transparencies and talking. Both are visuals for communication purposes. Communication is the art of being understood and so the visuals should have three attributes namely, clarity, simplicity and message. It is pertinent to quote Raphael Gefen when he says "If Communication is the aim of teaching, then the communication must be the means of learning".

Making of visual aids for projection is not just a sundry reprographic activity, but a process involving science and technology. Planning for the preparation of the input is as much important as that of quality

control elements like, colour and contrast. The third element "Clarity" is the crux and this involves a scientific study.

A study reveals that the clarity of these visuals depends on certain standards of the input and could be called primary element, while colour and contrast are only secondary. That is the reason why a well designed and prepared B & W visual would be more effective communication medium than the visuals made of toning process, diazo, thermography, hand colouring and so on prepared without a standard input.

The art and science of visuals making have undergone tremendous transformation, thanks to radical developments in graphic arts, photography, thermography, diazography etc. There are many innovations with astonishing results which are cost effective. Some are technology oriented while some are skill oriented. We have technologies using PCs for making and projection of overhead transparencies for teaching, seminars and workshops. Slides made through Microfilm Technology will be far superior in quality with a production capacity of 600 slides an hour. What else is needed?

State-of-the-art of Technology

Though the visual aids are powerful tools, it has been found by experience that good planning and preparation of visuals according to standards are seldom adhered to, obviously due to lack of infrastructural facilities or awareness to quality control aspects. This is the status everywhere be it the colleges, universities or even R & D institutions. There are no schools or training centres, at present imparting training in the preparation of visuals according to scientific principles. A communicator has to be good in oral communication as well as AV methods. While preparation of visuals needs a specialised training, knowledge of operation of projection equipment and maintenance too is very important. There are standards in choosing size of projection screens and other elements when communication is to be full. A stereo projection system will attract more attention by the audience than the conventional projection techniques. An indepth study of this technology is very essential for the growth of educational technology.

What We Need ?

There is urgent need to have a comprehensive train-

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ing programme linking visual preparation, use of projection systems, do's and don'ts and publication of standards for the preparation of input and an indepth study of different systems like, B & W material preparation, toning, diazo, thermography, electrography, lithography, colour negatives and positives. The economics of the production of these materials and thorough study of infrastructure needed are also to be discussed. This could be a part of Educational Technology in university departments.

Silver Lining

It was interesting to read the news item in the "University News" July 15, 1991 issue that according to Prof. V.C. Kulandai Swamy, VC, IGNOU, New Delhi "a distance education council is being set up in the country to bring reforms in the non-conventional methods of teaching so that a higher standard of quality education is offered to students outside the reach of conventional centres of learning". It is also reported that in Australia a set up

called "Distance Education Centre (DEC) is functioning and the Australian Government identifies a particular centre or university for preparation of materials for distance education and funds allotted. A similar experiment is needed to be tried in India.

Suggestion

The Distance Educational Council when comes into being can think of having a council for AV technology as well.

In the alternative some university departments or technical institutions where infrastructure and expertise are available in AV technology may be identified not only for the preparation of visuals for use by various universities but also to arrange training programmes in the AV technology which may include preparation of visuals plus operation and maintenance of projection system. This sort of renaissance should take place almost immediately.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages.	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035 Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004 Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair - 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

International Conference on Experiential Learning

The Indian Society of Experiential Learning (INSEL), in collaboration with Pondicherry University and the Administration of the Union Territory of Pondicherry will organise an International Conference on Experiential Learning on March 9- 15, 1992 at Pondicherry.

The theme of the Conference is Anubhava & Swadharma i.e. Experience and Self-actualisation.

The topics proposed to be discussed at the Conference would be as under :

- (1) Experiential learning and educational policies
 - approaches and innovations in formal, non formal and informal systems of education.
 - adult literacy programmes.
- (2) Extension of scientific knowledge and technologies to various sections of society
 - transfer of technology for economic development
 - application of science for rural development and welfare
- (3) Individual existential paradigm in holistic development
 - self-actualisation and cultural and spiritual development
 - experiential learning and psychotherapy
- (4) Concept of Global Village, experiential learning and changing socio-cultural values.
- (5) Sustainable development, ecological balance and concern for environment

Further details can be had from : INSEL C/o Raj Nivas, Pondicherry 605001.

IEDC Agencies Meet

A two-day national conference of Non-Governmental Organisations (NGOs) and government agencies working for the implementation of Integrated Education for Disabled Children (IEDC) was recently organised by the National Council of Educational Research and Training (NCERT). The objectives of the conference were to explore the possibilities of involving more and more NGOs in the implementation of the scheme in remote rural areas, work out the modalities of implementing the IEDC scheme through NGOs, consider the possibilities of establishing linkages between the schemes of education and the schemes of rehabilitation of disabled children, and discuss cost-effective models to provide services to more and more disabled children to ensure larger coverage.

Inaugurating the Conference Dr. K.Gopalan Director, NCERT said that the aim of 'Education for All' could not be achieved without integrating disabled children in normal schools. We were at present far away from the target, he said. Dr. Gopalan further said that the NGOs working in only one disability area should consider expanding their activities to other disability areas.

Seventy participants from various NGOs and state government agencies working in the IEDC scheme all over the country participated in the programme.

French Award for Professor Talwar

The noted Indian scientist, Prof. G.P. Talwar, has been conferred the highest French civilian award of "*Officer de la Legion D Honneur*." Director of the National Institute of Immunology (NII), New Delhi, Prof. Talwar is the first Indian Scientist to receive this honour.

Prof. Talwar, who laid a strong foundation of immunology in India, has three indigenous vaccines to his credit. These are an anti-leprosy vaccine, a sterilisation vaccine for Mammals and a birth control vaccine for women.

The anti-leprosy vaccine currently in therapeutic trials in two major hospitals in Delhi as well as in Kanpur Dehat amongst a community of 3,62,000 has demonstrated that as an adjunct to multi-drug therapy the vaccine can accelerate recovery from disease and can also upgrade the immunological responses of the patient.

Another injectible developed by him can sterilize male mammals without affecting their virility. Bulls sterilized by this vaccine called Tal-sur, can identify the female in estrus without being able to impregnate her. Detection of estrus at the right time is crucial to the success of artificial insemination.

Prof. Talwar is also credited with the development of a human birth control vaccine for use in women. The vaccine neutralizes the pregnancy hormone - the human chorionic gonadotropin (HCG) - crucial for the sustenance of pregnancy.

National Seminar on Farm Growth

Mr. Amrik Singh Pooni, Financial Commissioner (Development) Punjab, inaugurated a two-day National Seminar on "Issues and Policies in Growth of Indian Agriculture" at the Punjab Agricultural University recently. Speaking on the occasion Mr. Pooni highlighted the major problems which the agriculture was facing. He said that with the advent of green revolution the country had become self-sufficient in foodgrains, but despite additional production the returns were diminishing and the enhanced support price for various crops did not compensate the increased cost of production. Seventy per cent of the cultivable area in the country, Mr. Pooni said, was rainfed and mainly dependent upon good rainfall. On account of intensive agriculture the soil had become deficient of micronutrients which needed immediate attention of the farm experts, he added.

Mr. Pooni underlined the importance of high value crops, fruit crops and dairy farming which could improve the economic conditions of the farmers. He said that area under sugarcane had increased but was still insufficient to meet the demands of growing number of sugar mills. For cotton Mr. Pooni urged the scientists to develop an effective and integrated pest management programme to save the crops from pests like Heliothis which had severely damaged the cotton crop during last year. He suggested that biological control should

be preferred to chemical control.

Dr. Khem Singh Gill, Vice-Chancellor of the Punjab Agricultural University, who presided, said that the research programmes of the University had been reoriented to meet the new challenges. The farmers were being advised to use the farm inputs judiciously to cut down the cost of production. Dr. Gill urged that processed farm produce should be taken to the markets for better return.

Electronic Media & Dissemination of Farm Technology

Mr. M.G. Gautam, Station Director of Television Centre, Jalandhar, inaugurated a National Workshop on the Use of Electronic Media in Communication of Farm Technology in the Communication Centre of the Punjab Agricultural University recently. In his address Mr. Gautam said that mass media, whether electronic or print media, had played an effective role in the dissemination of information to the masses. He said that radio and television had made immense strides during the course of their existence in the overall development of the country.

Mr. Gautam said that 'India lived in villages' and agriculture was the backbone of the Indian economy. Since 50 percent of national income came from agricultural sector it should be further strengthened.

Mr. Gautam observed that on account of technical advancements agricultural research had tremendously helped the farmers to increase the productivity of their crops. He commended the agricultural scientists, who with their teams of dedicated extension staff, were engaged in bringing the results of their endeavour in the laboratories to the fields at the doorsteps of the farmers. The quick dissemination of farm technology to the farmers by the mass media made the 'Green Revolution' greener, he opined. The electronic media had done commendable work in promoting national integration to spread the message of social welfare and create an awareness about our cultural heritage, he added.

Dr. G.S. Gill, Director of Extension Education of the PAU, who presided, said that new farm technology was being generated at the University to increase the farm productivity per unit area. He highly appreciated the role of electronic media which always came to the rescue of the farmers in case there was a sudden outbreak of some disease or the attack of some insect-pest noticed on some crops. Dr. Gill urged the participants of the Workshop to spread the knowledge gained by them during this workshop among their colleagues also.

20 participants from Maharashtra, Madhya Pradesh, Rajasthan, Haryana and Punjab attended the Workshop which was sponsored by the Union Ministry of Agriculture.

Australia Prize 1992

The Government of the Commonwealth of Australia has instituted the AUSTRALIA PRIZE as an annual international award for outstanding achievement in science and technology promoting human welfare. It was first awarded in 1990.

The Prize consists of \$250,000 and an inscribed medal. In 1992 the field in which the award is to be made is physical sciences related to mining or processing of mineral resources.

Nominations for the 1992 award are being sought, both in Australia and internationally, from learned and professional bodies and universities and from individuals associated with the area of endeavour in which the award is being made. The winner or winners will be announced in January 1992.

The inaugural Australia Prize was awarded jointly to Professor Allen Kerr (Australia), Professor Eugene Nester (USA) and Professor Jeff Schell (Germany) for their work in the genetic engineering of plants and microbes.

Awards for Science and Technology Policy

Two Annual Awards for the Promotion of Science and Technology policy, the first of their kind, are to be instituted in 1992 by UNESCO and the International Science Policy Foundation.

The Awards, each of 1,000 pounds sterling, are being made through the generosity of Swaraj Paul, a member of the Foundation Advisory Council. They are

designed to reinforce the pioneering activity of UNESCO and the International Science Policy Foundation in providing necessary steps in the development of Science and Technology Policy behaviour and understanding.

Entries are to be invited under the following categories:

1. For Practical Achievement by a Parliamentary Group, Government body, National or International Organization, university institute or industrial research centre responsible for conceiving or implementing the most innovative research support or policy mechanism in recent years.

2. For Theoretical Achievement by the author or authors or editor of a book or government paper or report or an article in a referred scientific, engineering or research policy journal making the most original contribution to the literature on the planning, management and assessment of science and technology during the previous two years.

Conference on Science and the Human-Animal Relationship

The International Conference on Science and the human-animal relationship will be held in Amsterdam (The Netherlands) on March 5-7, 1992. The question of animal experimentation has been individually addressed by scientists, and organized groups concerned with animal suffering. The purpose of this conference is to generate interdisciplinary consideration of this question. The conference will focus on the following themes:

- the influence of natural science on the human-animal relationship;
- the human-animal relationship as an object of social research;
- animals and the cult (culture) of natural science;
- animal care (ethical) committee between the scientific community and government.

These themes will be considered in the context of presentations and workshops. Special evening programmes will be conducted on the regulation of research with transgenic animals by humans.

Further information can be obtained from: Dr. E.K. Hicks, SISWO P.O. Box 19079, 1000 GB Amsterdam, The Netherlands.

World Conference on Language Teaching

The Seventh International conference of the Institute of Language in Education, Hong Kong, will be held on 17-19 December, 1991 at the Hong Kong Convention and Exhibition Centre.

It will focus on key issues relating to the achieving and maintaining of quality in language teaching. The topics proposed to be discussed include: the Concept of Quality in Language Learning, Language Teaching and Language Use; Quality in Schools: the Training of Teachers; Relationships with Schools; Quality in Language Education and Economic Imperatives; Key Areas in the Pursuit of Quality, and Assessment, Appraisal and Monitoring.

Further details can be had from Dr. Verner Bickley, MBE Director, Institute of Language in Education, 2 Hospital Road, Hong Kong.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in the bibliography. Such universities as are not sending us regular information in respect of doctoral theses accepted and research scholars enrolled are welcome to make use of these columns.

The library also receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly the column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees in Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Dhadhwal, Susham Lata. **Some Newtonian and non-Newtonian hydromagnetic flow problems.** HP. Dr M G Gourla, Department of Mathematics, Himachal Pradesh University, Shimla.
2. Gupta, Rajinder. **Some problems on the rupture behaviour of engineering materials.** HP. Dr B B Sharma, Department of Mathematics, Himachal Pradesh University, Shimla.
3. Gupta, Urvashi. **Linear stability problems in hydromagnetics.** HP. Dr R C Sharma, Department of Mathematics, Himachal Pradesh University, Shimla.
4. Hari Mohan. **Some stability problems in hydrodynamics and hydromagnetics with reference to thermal and thermohaline convection.** HP. Dr J R Gupta, Department of Mathematics, Himachal Pradesh University, Shimla.
5. Jyoti Prakash. **Some problems in hydrodynamic and hydromagnetic stability.** HP. Dr M B Banerjee, Department of Mathematics, Himachal Pradesh University, Shimla.
6. Pardeep Kumar. **Immiscible and miscible displacement of fluids in permeable media.** HP. Dr R C Sharma, Department of Mathematics, Himachal Pradesh University, Shimla.
7. Rakesh Kumar. **On magnetohydrodynamic thermal and thermohaline convection problems.** HP. Dr R G Shandil, Department of Mathematics, Himachal Pradesh University, Shimla.
8. Rajesh. **Some investigations on the behaviour of composite**

materials. HP. Dr B B Sharma, Department of Mathematics, Himachal Pradesh University, Shimla.

9. Shukla, Rakesh Kumar. **Some problems in elastic-plastic and creep transition for non-homogeneous materials.** HP. Dr S K Gupta, Department of Mathematics, Himachal Pradesh University, Shimla.

10. Sunil. **Instabilities in permeable media.** HP. Dr R C Sharma, Department of Mathematics, Himachal Pradesh University, Shimla.

11. Thakur, Jitindra. **On some hydrodynamic and hydromagnetic stability problems with permeable boundaries.** HP. Dr R G Shandil, Department of Mathematics, Himachal Pradesh University, Shimla.

Chemistry

1. Baby Girija. **Interaction of isothiocyanate with thiadiazoles.** Kerala. Dr A Sulekha, Department of Chemistry, S N College, Kollam.

2. Harikumar, S. **Extraction and preservation of chemicals of medicinal value and essential oils present in the plants in Kollam.** Dr A Sulekha, Department of Chemistry, S N College, Kollam.

3. Josewin, B. **Chemistry of medicinal plant products.** Kerala. Dr M Ramachandra Pai, Head, Department of Chemistry, University of Kerala, Thiruvananthapuram.

4. Santhi, P B. **Studies on the liquid - liquid extraction of yttrium and some rare earths with sulphoxides.** Kerala. Dr M Lakshmiopathy Reddy, Scientist, Rare Earths Chemistry, Regional

Research Laboratory, Thiruvananthapuram.

5. Sheeba, K S. *Fungal metabolites in food materials*. Kerala. Dr M Ramachandra Pai, Head, Department of Chemistry, University of Kerala, Thiruvananthapuram.

6. Shiney Abraham. *Polymer supported solid phase organic synthesis*. Kerala. Dr P K Rajan, Lecturer, Department of Chemistry, University of Kerala, Trivandrum.

7. Sophiamma, P N. *Synthesis and applications of organic polymers as support systems*. Kerala. Dr K Sreekumar, Lecturer, Department of Chemistry, University of Kerala, Trivandrum.

BIOLOGICAL SCIENCES

Biochemistry

1. Geetha, K G. *Comparative study of the effect of red palm oil and coconut oil on cholesterol metabolism*. Kerala. Dr S Leelamma, Reader, Department of Biochemistry, University of Kerala, Kariavattom and Dr P A Kurup, Prof (Retd), Department of Biochemistry, University of Kerala, Kariavattom.

2. Jayakumar, K. *Studies on certain aspects of electron transfer in flarial parasites*. Kerala. Dr R Kaleysa Raj, Prof, Department of Biochemistry, University of Kerala, Kariavattom.

Zoology

1. Sen, Gargi. *Zinc toxicity to some tissues of a fresh water fish,*

Channa punctatus Bloch. Sambalpur. Dr Milan Kumar Behera, Reader, Department of Zoology, G M College, Sambalpur and Dr P N Patel, Lecturer, Department of Chemistry, G M College, Sambalpur.

Medicine

1. Dash, Bisnu Prasad. *Study of glucose metabolism in sickle haemoglobin containing human red blood cells*. Sambalpur. Dr B C Kar, Department of Medicine, V S S Medical College, Burla and Prof A Mittra, P G Department of Life Science, Sambalpur University, Jyoti Vihar, Burla.

2. Dasan, E V. *Molecular markers in cancer of the uterine cervix- oncogene expression*. Kerala. Dr B Prabha, Assoc Prof, Research Division, Regional Cancer Centre, Thiruvananthapuram.

3. Maninder Jit Kaur. *Phytochemical and antihepatotoxic investigations on 'Chirata': A traditional drug of Indian origin*. Panjab. Prof S S Handa, Department of Pharmaceutical Sciences, Panjab University, Chandigarh.

4. Nerurkar, Sunanda Shripad. *Lipid profile and cardio-vascular function in diabetic patients*. Kerala. Dr K K Vijayan, Asstt Prof, Department of Pharmacology, Medical College, Thiruvananthapuram and Dr T Vijayakumar, Senior Scientific Officer, Regional Cancer Centre, Thiruvananthapuram.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Aloney, Mahipat Rao. *M-injective and flat modules*. H S Gour. Dr R S Singh, Department of Mathematics, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

2. Chandel, Raghavendra Singh. *Some problems in fixed point theory*. Devi Ahilya. Dr Ashok Ganguli, Department of Mathematics, Shri G S Institute of Technology and Science, Indore.

3. Jayaram, S R. *Some topics in graph theory: On some new parameters in domination theory*. Karnatak. Dr E Sampathkumarachar, Department of Mathematics, University of Mysore, Manasagangothri, Mysore.

4. Johnson, T P. *Some problems on lattices of fuzzy topologies and related topics*. CUST. Dr T Thiruvikraman, Prof and Head, Department of Mathematics and Statistics, Cochin University of Science and Technology, Kochi.

5. Mathew, George. *Studies on some conservation laws of non-barotropic flows*. CUST. Dr M Jathavedan, Reader, Department of Mathematics and Statistics, Cochin University of Science and Technology, Kochi.

6. Sarkar, Prabal. *Some contributions to reliability theory assuming a power failure model*. Burdwan. Prof Srijit Bhushan Bagchi, Department of Statistics, University of Burdwan, Burdwan.

Statistics

1. Udaya Sree, P. *Statistical inference in one and two parameter*

generalized inverse gaussian Markov sequence. Osmania.

Astronomy

1. Chhabra, Jai Gopal. *A critical analysis of the predictions of Pluto and planet X*. Punjabi. Dr S D Sharma, Prof, Department of Physics, Punjabi University, Patiala.

2. Narasimha Rao, M. *Orbits of colliding galaxies*. Osmania.

3. Narinderjit Singh. *Nature of B stars with emission lines*. Punjabi. Dr S D Sharma, Prof, Department of Physics, Punjabi University, Patiala.

Physics

1. Abraham, P K. *Electrical switching studies on the thin films of polyfuran and polyacrylonitrile prepared by plasma polymerisation and vacuum evaporated amorphous silicon*. CUST. Dr K Sathianandan, Prof (Retd), Department of Physics, Cochin University of Science and Technology, Kochi.

2. Bandyopadhyay, Subrata. *Influence of hyperthermia on induction of killing and mutation in V-79 cells*. Calcutta.

3. Chandrayan, Vilas Rajeshwar. *Investigations on Li SO :Ag SO system for solid state battery application*. Nagpur. Dr K Singh, Department of Physics, Nagpur University, Nagpur.

4. De, Alok Kumar. *Study of alpha-deuteron interaction around 40 MeV*. Burdwan. Dr Sudesh Sarkar DasGupta, Reader, Department of Physics, University of Burdwan, Burdwan.

5. Koka, Subbaravamma. **Fluctuations in type-II superconductors and related problems.** Hyderabad. Prof K N Shrivastava, Department of Physics, University of Hyderabad, Hyderabad.

6. Limboo, Raja Sing. **On the inclusive and II production in the interaction of 200 Ge V/C proton with emulsion nuclei.** Gauhati. Dr G C Deka, Nuclear Research Project, Cotton College, Guwahati.

7. Mahata, Kalyaneswari. **A theoretical study on some central field problems in the large-N expansion approach.** Visva-Bharati. Dr P P Ray, Department of Physics, Visva-Bharati, Santiniketan.

8. Patra, Tejaraj. **Studies in heavy ion scattering.** Sambalpur. Dr K C Panda, Lecturer, Department of Physics, Sambalpur University, Jyoti Vihar, Burla.

9. Rishi Kumar. **XANES and EXAFS study of valence fluctuation in some of system.** Rajasthan. Prof K B Garg, Department of Physics, University of Rajasthan, Jaipur.

10. Sahota, Gurinder Pal Singh. **Investigation of decay characteristics of some nuclei.** Punjabi. Dr V K Mittal, Lecturer, Department of Physics, Punjabi University, Patiala.

11. Sahu, Basudeb. **Studies on heavy ion collisions and fusion.** NEHU. Prof C S Shastri, Department of Physics, North Eastern Hill University, Shillong.

12. Sehgal, Ashwani Kumar. **Transport properties on magnetised plasma.** Punjabi. Dr S C Gupta, Prof, Department of Physics, Punjabi University, Patiala.

13. Shah, Mina. **Studies on OTF based assessment of optical and optoelectronic systems.** Calcutta.

14. Varghese, Lalaja. **Studies on non-linear dynamical systems in neurophysics and astrophysics.** CUST. Dr V P N Nampoori, Reader, Department of Physics, Cochin University of Science and Technology, Kochi.

15. Yousefi, Gholam Hossein. **Growth and characterization of molybdenum tungsten diselenide single crystals for photoelectrochemical solar cells.** Patel. Prof M K Agarwal, Department of Physics, Sardar Patel University, Vallabh Vidyanagar.

Chemistry

1. Baral, Minati. **Studies on some manganese and nickel complexes.** Sambalpur. Dr B Pradhan, Asstt Prof, Department of Chemistry, Regional Engineering College, Rourkela.

2. Chakraborti, Jayati. **Studies on the chemistry of naturally occurring steroidal and phenolic compounds.** Calcutta.

3. Chatterjee, Tarapada. **Phytochemical studies of Indian medicinal plants.** Visva-Bharati. Prof K S Mukherjee, Department of Chemistry, Visva-Bharati, Santiniketan.

4. Chaudhuri, Jayasri. **Studies on biological activity of aspartic and glutamic acid derivatives and their complexation characteristics.** Calcutta.

5. Dallali, Nasser. **Studies on heterocyclic compounds and their analytical applications.** Baroda.

6. Deshkar, Ashok Mahadeorao. **Studies on binding of mercury on some commonly available Indian tree barks.** Nagpur. Dr S S Dara, Prof, Visveswaraiya Regional College of Engineering, Nagpur.

7. Dubey, Vibha. **Studies on natural products, with special reference to fatty and defatty components.** H S Gour. Dr A K Banerjee, Department of Chemistry, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

8. Ghosh, Swarnali. **New dimensions of nuclear track technique.** NEHU. Dr K K Dwivedi, Reader, Department of Chemistry, North Eastern Hill University, Shillong.

9. Kashyap, Pradeep Kumar. **Methods for the determination of hydrazine derivatives and their applications in pharmaceutical analysis.** HP.

10. Merchant, Riyazali Ramzanali. **Oxygenation of organic substrates catalyzed by Ru (III) complexes.** Bhavnagar. Prof M M Taquikhan, Director, Central Salt and Marine Chemicals Research Institute, Bhavnagar.

11. Mulla, Gousemohaddin Mahabubsab. **Chemical investigation of minor seed oils and synthesis of undecylenic acid derivatives.** Karnatak. Dr C D Daulatabad, Reader, Department of Chemistry, Karnatak University, Dharwad.

12. Nema, Durga. **Phytochemical investigation of some Indian medicinal plants.** H S Gour. Dr Hari Singh Gour Vishwavidyalaya, Sagar.

13. Pande, Hemant Manohar. **Scavenging of trace concentrations of copper ions from aqueous solutions employing granulated activated carbon containing absorbed chelating species.** Nagpur. Dr G S Natrajan, Reader, Department of Chemistry, Laxmi Narain Institute of Technology, Nagpur.

14. Patel, Raj Kishore. **Some aspects of transition metal complexes of copper, cobalt and nickel.** Sambalpur. Dr R N Patel, Prof, Department of Chemistry, Regional Engineering College, Rourkela.

15. Patnaik, Chakrapani. **Mechanistic aspects in some redox processes.** Berhampur. Dr Radhasyam Panda, Reader, Department of Chemistry, Khallikote College, Berhampur and Dr Akhil Krishna Panigrahi, Department of Chemistry, Khallikote College, Berhampur.

16. Pato, Lakshmi Narayana. **Reaction mechanism.** Berhampur. Dr P S R Murty, Prof (Retd), Krishna Tulasi Gas Godown, J K C Nagar, Guntur and Dr Rama Krishna Panda, Reader, Department of Chemistry, Berhampur University, Berhampur.

17. Pramanik, Trishna. **Kinetics and mechanism of reaction of complexes of iron (II), copper (II) and nickel (II) in solution.** Calcutta.

18. Prem Lata. **Electrometric studies of heterocyclics.** Punjabi. Dr A L J Rao, Prof, Department of Chemistry, Punjabi University, Patiala and Dr N K Ralhan, Prof, Department of Chemistry, Punjabi University, Patiala.

19. Rai, Sandeep. **Studies on polymer metal complexes.** Durgawati. Dr U D N Bajpai, Department of Chemistry, Rani Durgawati Vishwavidyalaya, Jabalpur and Dr C V P Pillai, Head, Department of Chemistry, Government Engineering College, Bilaspur.

20. Ray, Subhra. **Thermodynamic studies on solute-solvent interactions in some non-aqueous solutions.** Visva-Bharati. Dr I Basumallick, Department of Chemistry, Visva-Bharati, Santiniketan.

21. Santra, Sarbani. **Structure determination and synthesis of natural products.** Calcutta.

22. Satbir Singh. **Mechanistic studies on photoreduction.** Punjabi. Dr K S Sidhu, Prof, Department of Chemistry, Punjabi University, Patiala.

23. Shrivastava, Dinesh Kumar. **A study of the soil reclamation efficiency and usefulness as a fertilizer of the industrial waste product obtained from the oxalic acid producing industries of M P.**

Durgawati. Dr S K Srivastava, Department of Applied Chemistry, Government Engineering College, Jabalpur and Dr P R Dutt, Assoc Prof, Department of Soil Science, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur.

24. Singh, Wairokpam Rameshwar. Corrosion studies on some copper based alloys. BHU. Dr R N Singh.

25. Sreerama, L. Studies on carboxyl ester hydrolases of termite, *Orientotermes horni* W and its gut-associated fungus, *Xylaria nigripes* K. Bangalore. Dr P S Veerabhadrappe, Chairman, Department of Chemistry, Central College, Bangalore.

26. Thomas, Benny. Salt effect on the activity coefficient of some polar non-electrolytes. CUST. Dr S Sugunan, Reader, Department of Applied Chemistry, Cochin University of Science and Technology, Kochi.

27. Udaya Kumari, T. The chemical investigation of some insecticidal plants and synthesis of some related oxygen heterocyclic compounds. Osmania.

Earth Sciences

1. Bandyopadhyay, Satyendra. Investigation on palaeomagnetism in relation to petromineralogical characteristics of the Deccan Trap Lava in Amarkantak plateau, M P, India. Calcutta.

2. Bhattacharyya, Samarendra. Structure metamorphism and stratigraphy of the border region between Singhbhum mobile belt and Chhotanagpur plateau in South Purulia, West Bengal. Calcutta.

3. Chattopadhyay, Asim Kumar. Structural and metamorphic evolution of precambrian rocks near Dhalbhumgarh, East Singhbhum. Calcutta.

4. Deb, Gautam Kumar. Tectonics of the eastern extension of the Singhbhum Shear Zone near Mosabani and Bhaikl. ISM. Prof D Mukhopadhyay.

5. Laybidi, Jahandar Izadi. Mineralogical study of Kudremukh iron ore deposit and pelletization characteristics of the ore mixed with Gol-E-Gohar Magnetite, Iran. BHU. Prof Brahm Prakash.

6. Manjunatha, B R. Geo-chemistry and magnetic susceptibility of riverine, estuarine and marine environments around Mangalore, West Coast of India. Mangalore. Dr R Shankar, Reader, Department of Marine Geology, Mangalore University, Mangalagangothri.

7. Meena, P G. Some aspects of atmospheric circulation, moisture and heat budgets at selected areas over Arabian Sea. CUST. Dr D V Viswanatham, Reader, Banaras Hindu University, Varanasi and Dr H S Ram Mohan, Reader, Department of Meteorology, School of Marine Sciences, Cochin University of Science and Technology, Kochi.

8. Pandey, Somesh Kumar. Structural and strain analysis of ductile shear zones developed in the basement granite around Hirapur, District Sagar, M P and their relationship with cover sediments phosphorite mineralization. H S Gour. Dr P P Roday. Department of Applied Geology, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

9. Purandara, B K. Provenance, sedimentation and geochemistry of the modern sediments of the mud banks off the Central Kerala Coast, India. CUST. Dr Y L Dora, Prof, Department of Marine Geology, Nagarjuna University, Nagarjunanagar.

ment of Marine Geology, Nagarjuna University, Nagarjunanagar.

10. Samsuddin, M. Sedimentology and mineralogy of the beach strand plain and innershelf sediments of the Northern Kerala Coast. CUST. Dr Y L Dora, Head, Department of Marine Geology, Nagarjuna University, Nagarjunanagar.

11. Sharma, Vikas. Geomorphic evolution of Kutch Coastline with special reference to erosional and depositional processes. Delhi.

12. Singh, Arun Deo. Neogene planktonic foraminiferal biochronology and paleoceanography of DSDP sites 219, 220 Arabian Sea and 237, 238, Central Indian Ocean. BHU. Prof M S Srinivasan, Department of Geology, Banaras Hindu University, Varanasi.

13. Singh, Ganesh Prasad. Petrological and geochemical evolution of the paleogene coal deposits, District Rajouri, Jammu and Kashmir. BHU. Dr M P Singh, Department of Geology, Banaras Hindu University, Varanasi.

14. Syed Moeen. Petrology and mineral chemistry of the rocks and fluid inclusion studies of Barytes Deposit in the area between Utukuru and Chintalapalem, Nellore Schist Belt, A P, India. Andhra.

15. Thomas, K V. Beach and surf zone morphodynamics along a wave-dominated coast. CUST. Dr M Baba, Scientist-in-charge, Centre for Earth Science Studies, Regional Centre, Kochi.

Engineering & Technology

1. Bhagade, Sudheer Shiorao. Study of catalysis by ion exchange resins: Esterification reactions. Nagpur. Dr G D Nageshwar, Reader, Department of Chemical Engineering, Laxminarain Institute of Technology, Nagpur.

2. Gupta, Laxmikant Madanmanohar. Optimisation of turbine house structure for 210 MW and 500 MW capacity sets in thermal power station. Nagpur. Dr M M Basole, Prof, Department of Applied Mechanics, Visveswaraiya Regional College of Engineering, Nagpur.

3. Kalyan Kumar. Reliability modelling and performance analysis of power distribution system for equipment in coal mines. ISM. Prof D K Sinha, Indian School of Mines, Dhanbad and Dr P K Ramasubban, Indian School of Mines, Dhanbad.

4. Mitra, Arunabha. On cybernetic approach of computer aided design of rotating electrical machine. Calcutta.

5. Mohammad Jawed. Optimization of coking coal mining system under Indian environment. ISM. Prof D K Sinha.

6. Singh, Arun Kumar. Removal of Fe(II), Zn (II) and Mn (II) from water using fly ash, wollastonite and china clay. BHU. Prof D P Singh, Department of Mining Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

7. Singh, Trilok Nath. A study of opencast slope stability in the ground disturbed by earlier workings by equivalent material modelling technique. BHU. Dr D P Singh, Prof, Department of Mining Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

8. Yadav, Keshar Prasad. A BEM elastostatic evaluation of effect of some parameters on the displacements and stresses around a shallow-seated wide opening. BHU. Prof J G Singh.

REFERENCE AND RESEARCH TOOLS

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

Invaluable reference for those seeking to register for a Doctoral Programme

The bibliography is classified by subjects and covers all the disciplines in which a doctoral degree is awarded by the Indian Universities. Each entry gives complete bibliographical details, viz., name of the research scholars, title of the thesis, university/institute where the research was conducted, years of registration and award of degree, availability note – whether the thesis is available in the university library/department concerned/university office and the name and complete address of the guide/supervisor.

Comprehensive and exhaustive as the bibliography is it not only reports the research being conducted at the university centres, but also includes research work done at the institutions of national importance, like the IITs, institutions deemed to be universities, like the Indian School of Mines, CSIR Laboratories as also the research establishments connected with ICAR and ICMR.

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GRAM: ASINDU

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto 31st October, 1991 for the following posts of the Council's Institutes/Centres:-

A. AT THE REGIONAL MEDICAL RESEARCH CENTRE (DESERT), JODHPUR

Deputy Director - One post. Scale of pay of Rs.4500-150-5700 **Qualifications & Experience: Essential:** a) M.B.B.S. b) 12 years research/teaching experience in the field of social & Preventive Medicine/Medicine/Paediatrics/Gynae.&Obst./Pathology (10 years research/teaching experience for candidates possessing M.D.). c) Original work as evidenced by publications. **Job Requirements:** The incumbent will be required effectively to co-ordinate the activities of the comprehensive Health Survey. The incumbent will also be required to assist the Officer-in-Charge of the Centre in various administrative tasks.

B. AT THE ENTEROVIRUS RESEARCH CENTRE, BOMBAY

Deputy Director-One post. Scale of pay of Rs.4500-150-5700. **Qualifications & Experience: Essential:** MBBS/1st Class M.Sc. with 12 years research/teaching experience in Virology or allied disciplines like immunology, molecular biology or epidemiology of viruses (10 years for those with M.D. in Microbiology or pathology). **Desirable:** 1. Ability to guide postgraduate students. 2. Administrative ability. **Job Requirements:** The incumbent will be required to plan, execute and monitor research projects on enteroviral infections at basic and applied levels.

C. AT THE TUBERCULOSIS RESEARCH CENTRE, MADRAS

Assistant Director (Clinical)-One post. Scale of pay of Rs. 3700- 125-4700-150-5000. **Qualifications & Experience Essential:** a) MBBS. b) 12 years research/teaching experience in tuberculosis OR 10 years experience in research teaching in Tuberculosis in case of candidates possessing M.D. (Tuberculosis) OR M.D. (General Medicine). c) Original work as evidenced by publications. **Desirable:** Experience in conducting controlled Clinical trials in the treatment of communicable diseases. **Job Requirement:** To conduct controlled clinical studies in the treatment of pulmonary tuberculosis and extra pulmonary tuberculosis and leprosy. The incumbent will have to supervise the work in the clinic which undertakes the Clinical Studies in patients. He will also have to undertake extensive tour of the districts in various States where "Short Course Chemotherapy under District Tuberculosis Programme" is undertaken and monitored by the centre. He will be required to plan, guide and supervise the conduct of the clinical research in tuberculosis and chest diseases.

D. AT THE NATIONAL INSTITUTE OF OCCUPATIONAL HEALTH, AHMEDABAD

Senior Research Officer (Lady Medical Officer for a women Cell)- One post. Scale of pay of Rs.3000-100-3500-125-4500. **Qualifications & Experience: Essential:** a) MBBS. b) 6 years research/teaching experience in undertaking field studies or clinical work Or 2 years experience in research/teaching in case of candidates possessing M.D. in Medicine/Gynaecology/P.S.M. **Job Requirements :** To plan and co-ordinate the research activities in relation to health problems of working women and children.

E. AT THE MALARIA RESEARCH CENTRE, DELHI

Senior Research Officer (Microbiology/Parasitology) - One post. Scale of pay of Rs.3000-100-3500-125-4500.

Qualifications & Experience: Essential: M.B.B.S./1st class M.Sc. in Microbiology/Parasitology with 6 years research/teaching experience in the field of specialisation. (2 years experience in research/teaching in Microbiology in case of candidates possessing M.D. or Ph.D. as evidenced by research publications). **Desirable:** Experience in Malaria Parasitology. **Job Requirements:** To participate in ongoing research programmes of the centre, Plan & carry out independent research on recommendations of scientific advisory groups/committees in the field of malariology. To participate in the teaching and training programmes of the Centre. Any other duty assigned by the Director.

F. AT THE INSTITUTE OF CYTOLOGY & PREVENTIVE ONCOLOGY, NEW DELHI

Assistant Director (Clinic)- One post. Scale of pay of Rs. 3700- 125-4700-150-5000. **Qualifications & Experience: Essential:** a) MBBS from a recognised University. Evidence of leadership with 12 years or M.D. with 10 years research/ teaching in the field of gynaecology. b) Original work as evidenced by published papers. **Job Requirements:** a) To co-ordinate the clinical aspects of major multicentric studies such as cervical pre-cancer & cancer and breast cancer undertaken by the Centre in collaboration with other Institutes & Hospitals. b) To offer appropriate management to cervical pre-cancer and cancer cases. c) Participation in planning & administration and other research programmes. d) To look after the administrative work of the division of clinical research.

G. AT THE INSTITUTE FOR RESEARCH IN MEDICAL STATISTICS, NEW DELHI

Senior Research Officer (Epidemiology)- One post. Scale of pay of Rs. 3000-100-3500-125-4500. **Qualifications & Experience: Essential:** a) MBBS from a recognised University. b) Six years research/teaching experience in Social & Preventive Medicine or Epidemiology and practical knowledge of conducting of Sample surveys, field studies and epidemiological investigations (Two years experience in research/teaching in case of candidates who possess

M.D in Social & Preventive Medicine or Epidemiology). **Job Requirements:** The incumbent will be required to plan and co-ordinate field studies in the delivery of rural, health care and utilisation of health services and operational and epidemiological studies in communicable and non-communicable diseases. He must have a sound appreciation of Statistical methodology and be willing to function effectively as a member of team, comprising largely of Statisticians.

Age: Below 50 years for the posts of Deputy Director and below 45 years for posts of Assistant Director, Senior Research Officer. SC/ST candidates allowed relaxation in accordance with Govt. of India Rules. Allowances as per Central Government rules are admissible on the above pay Scales. Benefits of pension admissible. Private practice is not allowed. However, NPA as per rules of the Council is admissible to medical graduates only. Candidates called for interview for the posts of Deputy Director and Assistant Director will be paid 1st class rail fare and for the posts of Senior Research Officer will be paid 2nd class rail fare by shortest route, on production of documents. Applications from employees working in Central/State Govt. Deptt./Public Sector Undertaking and Govt. funded research agencies must be forwarded through proper channel.

Application forms can be obtained from the office of the **Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, N.Delhi 110029**. Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No.4508, New Delhi-110029 with a crossed IPO for Rs. 8/-payable to the Director General, ICMR, New Delhi.SC/ST candidates are exempted from this payment. Incomplete and late application or without postal orders will not be entertained. The name of the post and of the Institute/Centre must be indicated in the Application form.

Separate application form should be submitted for each post with crossed IPO for Rs. 8/- and for each Institute/Centre.

AVADH UNIVERSITY, FAIZABAD

Advt.No. 1/1991

Applications are invited from Indian Nationals for the following posts on prescribed form (in 6 copies) obtainable from the office of the Registrar, Avadh University, Faizabad (U.P.) by sending a self addressed envelope of size 23x15 cms. and crossed Indian postal order/Bank Draft for Rs. 15/-payable to the Finance Officer, Avadh University, Faizabad. Money-orders are not acceptable. Application form duly completed should reach the University office within three weeks of the first issue of this Advertisement:-

I..	Name of Post	No of Post	Scale of Pay
1.	Reader in Deptt.of Rural Economics	2 (permanent)	Rs. 3700- 5700
2.	Lecturer in Deptt. Solid State Physics (Electronics)	1 (Leave Vacancy)	Rs. 2200-4000.
3.	Lecturer in Deptt. of Mathematics & Statistics.	1 (Leave Vacancy)	Rs. 2200-4000.

Qualifications

For the post of Reader

- (1) good academic record with a doctorate degree or equivalent published work, and active engagement in research or innovation in teaching methods or production of teaching materials; and
- (2) five years experience of teaching or research including at least three years as lecturer or in an equivalent position.

Provided that the requirement contained in sub-clause (2) may be relaxed in the case of a candidate who, in the opinion of the Selection Committee has outstanding research work to his/her credit.

For the post of Lecturer

Master's degree or an equivalent degree of a foreign University in the relevant subject with at least 55 percent marks or its equivalent grade and consistently good academic record.

Explanation— A candidate having obtained either 55 percent marks in Bachelor's degree examination and

second class in Intermediate examination or 50 percent marks in each of the

two examinations separately, is said to have consistently good academic record.

Preference will be given to S.C./S.T. candidates, if otherwise considered suitable by the Selection Committee.

Applications should be accompanied with A/C payee Bank Draft for Rs. 35/-as application fee and copies of books published, reprints of published research papers and attested copies of the certificates and testimonials. In case of applicants already in service, they should apply through proper channel. Applications received after due date and submitted on plain paper are not acceptable.

**Har Prakash
REGISTRAR**

CSIR GOLDEN JUBILEE RESEARCH AWARDS

Nominations are invited by the CSIR from the Indian Scientists upto the age of 40 years and working within and outside CSIR for CSIR Golden Jubilee Research Awards. These awards are intended to facilitate outstanding and talented young scientists to pursue and continue their R & D activities in their place of work in areas of Science & Technology of relevance to CSIR.

The project grant would be upto Rs.30 lakhs and the project would normally be for a period of 5 years.

Project proposals should be sent in prescribed proforma obtainable on demand from Head, Human Resource Development Group, CSIR, Anusandhan Bhawan, Rafi Marg, New Delhi - 110 001. Last Date for the receipt of the application is 31st December 1991.

CLASSIFIED ADVERTISEMENTS

DOCTOR HARISINGH GOUR VISHWAVIDYALAYA : SAGAR

Dated : 5th September, 1991

Advertisement No. 2/R/1991

Applications on the prescribed forms (precis in 7 copies) are invited from eligible candidates for the following posts in the University Teaching Departments.

PROFESSORS : Pay Scale Rs. 4500-150-5700-200-7300

ENGLISH 1, HINDI 1, PHILOSOPHY 2, (One in Indian Philosophy & One in Philosophy of Science/Modern Philosophy), PSYCHOLOGY 2, (one in Experimental Psychology), ECONOMICS 1, GEOGRAPHY 1, POLITICAL SCIENCE & PUBLIC ADMINISTRATION 1, ANCIENT INDIAN HISTORY, CULTURE AND ARCHAEOLOGY 1 (Tagore Chair), History 1, COMMUNICATION & JOURNALISM 1, COMMERCE 1, (Marketing Management/Cost Accounting) LAW 2, ELECTRONICS 1, (Temporary Micro Processor/Microwave Electronics), PHYSICS 2, (One in Electronics and one in Solid State Physics), Zoology 2, (One in Experimental/Gen. Metabolism & Organism Physiology), CRIMINOLOGY & FORENSIC SCIENCE 2, APPLIED GEOLOGY 2.

READERS : Pay Scale Rs. 3700-125-4950-150-5700

ENGLISH 1, (English Language Teaching), HINDI 1, SANSKRIT 1, URDU 1, PHILOSOPHY 1, PSYCHOLOGY 1, (Experimental Psychology), ECONOMICS 2, SOCIOLOGY 1, POLITICAL SCIENCE & PUBLIC ADMINISTRATION 2 (One in Regional Politics), HISTORY 1, ANTHROPOLOGY 1, (Social Anthropology), APPLIED ECONOMICS & BUSINESS MANAGEMENT 1, (Quantitative Techniques), ELECTRONICS 1, (Temporary Vacuum Technology), PHYSICS 1, CHEMISTRY 2, (One in Organic Chemistry), ZOOLOGY 3, (One in Environmental Biology/Limnology), CRIMINOLOGY & FORENSIC SCIENCE 2, APPLIED GEOLOGY 1, PHARMACEUTICAL SCIENCE 2, (One in Pharmacology) STATISTICS 1.

LECTURER: Pay Scale Rs. 2200-75-2800-100-4000

Department	Total Posts	Reserved for			General
		SC	ST	SC/ST	
English	3	1	1	-	1
Philosophy	1	-	-	-	1
Economics	2	1	-	-	1
Sociology	1	1	-	-	-
Geography	2	1	-	-	1
Political Science	1	1	-	-	-
Yogic Science	1	-	-	-	1
Youth Welfare (Performing Arts)	1	-	-	-	1
Commerce	4	1	1	-	2
Electronics (One in digital Electronics & one in Instrumentation)	2 (Temp.)	-	-	-	2
Physics	1	-	-	1	-
Criminology	2	1	1	-	-
Applied Geology	4	1	1	-	2
	(One Temp.)				
Pharmaceutical Science	1	-	-	1	-
Mathematics	4	1	1	-	2
	(One in Statistics)				
Botany	1	1	-	-	-
	31	10	5	2	14

INSTRUCTOR : PHARMACY : 1 (Temporary) : Pay Scale : Rs. 1740-60-2700-EB-75-3000

INSTRUCTOR: MUSIC : Pay Scale : Rs. 1740-60-2700-EB-75-3000

ASSISTANT DIRECTOR PHYSICAL EDUCATION : 2 : Pay Scale : Rs. 2200-75-2800-100-4000 (U.G.C.)

DEPARTMENT OF ADULT AND CONTINUING EDUCATION

DIRECTOR : 1 : Pay Scale: Rs. 4500-150-5700-200-7300 (U.G.C.)

ASSISTANT DIRECTOR : 1 : Pay Scale: Rs. 3700-125-4950-150-5700 (U.G.C.)

PROJECT OFFICER : POPULATION EDUCATION : Pay Scale: Rs. 2200-75-2800-100-4000

FOR ACADEMIC STAFF COLLEGE

DIRECTOR : 1 : Pay Scale Rs. 4500-150-5700-200-7300 (Temporary likely to continue)

READER : 1 (Temporary likely to continue) : Pay Scale Rs. 3700-125-4950-150-5700 (U.G.C.)

LECTURER : 1 (Temporary likely to continue) : Pay Scale Rs. 2200-75-2800-100-4000 (U.G.C.)

Prescribed application form together with details of qualification & other information may be obtained from the Registrar by making a written request accompanied by a Demand Bank draft of Rs. 30/- (Rs. 15/- in case of SC/ST supported by a caste Certificate) payable to the Registrar, Dr. Harisingh Gour Vishwavidyalaya, Sagar (M.P.) and self addressed envelope (5"x11") bearing postage stamps worth Rs. 3/- each. Application duly filled accompanied by Certified copies of Mark-sheets, Certificates and Testimonials should reach the Registrar on or before the 21st October 1991. The envelope containing the application should be superscribed as "Application for the post of -----".

The candidates who applied in response to advertisement No R/1 of 1989 dated 9.2.1989 are required to apply again. However they may send their applications on plain paper (seven copies) and are not required to pay application fee. Those who applied in 1989 for the posts of Professor of Law, Reader in Sanskrit, Urdu, Anthropology, Pharmaceutical Sciences, and Lecturer/Research Associate in Applied Geology and Lecturer in Mathematics are required to apply afresh on prescribed form and pay the prescribed application fee.

Dr. Krishnaji Tharal
REGISTRAR

ALL INDIA INSTITUTE OF MEDICAL SCIENCES

Ansari Nagar, New Delhi - 110 029

ADVERTISEMENT NO.5/91-Estt.I

Applications will be received by the Director, All India Institute of Medical Sciences, Ansari Nagar, New Delhi-29 from Indian citizens upto the **20th October, 1991** for the following temporary posts:-

1. ADDITIONAL PROFESSOR: ONE : For Surgery

Pay Scale: Rs.5100-150-6300 + NPA for medically qualified candidates.

2. ASSISTANT PROFESSOR: TWENTY SIX : Five for (1) Anaesthesiology and two each for (2) Paediatrics (3) Biostatistics (4) Radio- diagnosis (5) General Surgery (6) Dermatology & Venereology and one each for (7) Endocrinology (8) Otorhinolaryngology (9) General Medicine (10) Community Medicine (11) Forensic Medicine (12) Hospital Administration (13) Urology (14) Pharmacology (15) Gastro-intestinal Surgery (16) Cardiology and (17) Microbiology.

Pay Scale: Rs.3500-125-4500 + NPA for medically qualified candidates only.

Note: The post of Asstt. Professor of Cardiology is for C.T. Centre at the AIIMS, New Delhi.

Reservations

5 posts are reserved for Scheduled Castes candidates and 2 posts are reserved for Scheduled Tribes candidates.

N.B.: 1. All posts carry usual allowances as admissible to Central Government servants of similar status stationed at Delhi/New Delhi.

2. Scheduled Castes and Scheduled Tribes candidates called for interview will be paid travelling allowance as per rules of the Institute.

3. The effective date upto which the requisite experience must be completed will be 30th June, 1992.

4. In case of Scheduled Castes and Scheduled Tribes candidates, the length of experience prescribed for the post of Asstt. Professors are relaxable at the discretion of the Selecting Authority.

UPPER AGE LIMIT

50 years, relaxable for Government servants, scheduled castes and scheduled tribes candidates or otherwise exceptionally qualified candidates. Upper age limit upto 5 years is relaxable in the case of Scheduled Castes and Scheduled Tribes candidates.

N.B.: The essential qualifications are relaxable at the discretion of the Selecting Authority.

Application form and other information can be obtained personally or on written request accompanied by a self-addressed stamped (Rs.3.00) envelope (23x8cm) from the office of the Sr. Administrative Officer, Administrative Block, AIIMS, New Delhi.

CORRIGENDUM

Reference: This Institute's Advertisement No.3/91-Estt.I published in April, 1991 for various faculty posts at the AIIMS, New Delhi.

The advertisement for the post of Professor of Surgery appeared in April in various dailies for which last date of receipt of applications was 25.5.91 is hereby treated as cancelled/withdrawn.

UNIVERSITY OF BOMBAY

Bombay 400 032

Applications are invited in the prescribed form for the post of Professor of Public Administration in the University Department of Civics & Politics.

Details regarding the minimum and the additional qualifications prescribed for the post, pay scale etc. and prescribed forms of application can be had, in person, free of charge, from the Teaching Appointments Unit, Registrar's Office (Room No. 134), University of Bombay, Fort, Bombay 400 032. Requests for supply of a set of nine prescribed forms by post should be made

sufficiently in advance with a self-addressed stamped (Rs.6.00) envelope of the size 27 x 12 cms.

Nine copies of the application in the prescribed form, together with copies of certificates and the prescribed fee, should be sent in an envelope superscribed with "Application for the post of Professor of Public Administration" so as to reach the Registrar, University of Bombay (Teaching Appointments Unit), Fort, Bombay 400 032 on or before **Thursday, 10th October, 1991**. Candidates from abroad, Andaman and Nicobar islands and Lakshadweep may send their applications so as to reach the Registrar on or before **Friday, 25th October, 1991**. Candidates who are already employed shall send their applications through proper channel. Applications received after the last date fixed for the receipt of applications will not be accepted. Incomplete applications and applications on plain paper will not be considered. Canvassing direct or indirect will be a disqualification.

Candidates having knowledge of Marathi will be preferred.

G.M. Rajarshi
REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

(Ref. Adv. No. 9/1991/ICMR Hqs.)

Applications are invited upto **10th October, 1991** for a post of Research Officer (Programming) in the scale of pay of Rs.2200-75-2800-EB-100-4000 plus usual allowances in the Hqs. Office of the Council, New Delhi. **The post is reserved for ST category. However, SC candidates may also apply who shall be considered if suitable ST candidates are not available.**

Qualification & Experience : Essential : (1) 1st Class M.Sc. in Statistics/Mathematics/O.R./Physics with Training in Programming in FORTRAN/BASIC language from recognised institution. or Masters in Computer Application (MCA). (2) Three years experience in computer programming in solving scientific problems relating to bio-medical research. Familiarity with survey data processing using standard packages for statistical analysis viz. SAS, SPSS, SYSTAT etc. Operational experience of working on interactive computer systems/PCs, micro processor based systems or time sharing systems involving the database applications.

Job Description : The candidate has to independently prepare computer programmes using FORTRAN/BASIC languages for various statistical/data analysis problems involved in multicentric studies in medical research projects.

Age : Below 45 years.

Candidates called for interview will be paid 2nd Class return rail fare on production of documents. N.P.A. is admissible to Medical Graduates only as per rules of the Council. Private practice is not allowed. Service under the Council is pensionable.

Application from employees working in Govt. Department/ Public Sector Undertaking and Govt. funded research agencies should be forwarded through proper channel.

Application forms and other details can be obtained from the office of the Director-General, Indian Council of Medical research, Ansari Nagar, New Delhi - 110 029.

Forms duly completed should be sent to the **Director-General, Indian Council of Medical Research, Ansari Nagar, New Delhi - 110 029**. Incomplete and late applications will not be entertained.

**CENTRAL INSTITUTE OF
ENGLISH AND FOREIGN
LANGUAGES**
HYDERABAD - 500 007

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Editor :
SUTINDER SINGH

Reforms in Higher Education I., MYSORE

Veteran Economist Prof. V. M. Dandekar, Director, Indian School of Political Economy, Pune, delivered the Late Shri R. S. Dubhashi Memorial Lecture at the Goa University. In this highly perceptive lecture Prof. Dandekar finds the present higher education scenario in the country strikingly similar to the one operating in Europe in the eighteenth century. In a down to earth clinical manner he appraises our higher education system and offers 'radical' proposals for reform. We are pleased to carry the full text of Prof. Dandekar's lecture for the benefit of our readers.

The reform of higher education has many aspects. I shall consider only two of them : First, how to make the teachers in the colleges and the universities more accountable for their duties, particularly towards their students? Second, how to make the students more responsible for their studies? I shall consider them in that order though, as we proceed, we shall see that the two are connected.

Consider the first. How to make the teachers in colleges and in universities more accountable. To say this, implies that in the present system the teachers are not accountable. To explain what is meant, with minimum offence to the teachers, I shall quote what Adam Smith said on this question over two hundred years ago. Adam Smith, as you all know, is rightly called the Father of Modern Economics. For the benefit of non-economists sitting in the audience, I should mention that Smith studied at Glasgow University, was a Snell Exhibitioner at Baliol College, Oxford for six years from 1740 to 1746, gave a series of privately supported public lectures in Edinburgh in 1748, was elected to the Chair of Logic Glasgow University in 1751 and to the Chair of Moral Philosophy in 1752 which he held until 1764. He resigned his chair in 1764 to accept an appointment as a private tutor to the young son of Countess of Dalkeith. All his life Smith was a teacher except the last two years when in 1778 he was appointed Commissioner of Customs. He died on July 19, 1790. Though he is most famous for his treatise on political economy called '*An Inquiry into the Nature and Causes of the Wealth of Nations*' (briefly *Wealth of Nations*), his earlier work on the '*Theory of Moral Sentiments*' is equally important and valuable. *Wealth of Nations*, to which I shall make more reference was published in 1776 and was itself in the making for almost a decade beginning with 1767. The purpose of this long introduction is to emphasise that Adam Smith himself was a University Professor for a major part of his life and was a teacher of one sort or another throughout his working life and that, what he said of teaching profession, he did not write in a huff but only after great deliberation.

Recently, on the bicentenary of the death of Adam Smith on July 17, 1990, while leafing through the *Wealth of Nations*, I lingered on the article titled '*Of the Expenses of the Institutions for the Education of Youth*' (*Wealth of Nations*, Article II, Book V.i.f.). In a footnote, the Editors note: "Many of the views first expressed in this section appeared in Letter 143 addressed to William Cullen, dated 20 September, 1774, where Smith commented on the current practice of some Scottish Universities with regard to the granting (and sale!) of medical degrees". It was a relief to know that the educational practices which we think are new and peculiar to our country have such a respectable ancestry.

In that letter, Smith says: "I have thought a great deal upon this subject, and have enquired very carefully into the constitution and history of several of the principal universities of Europe", and he seems to have come to the conclusion: "The discipline of colleges and universities is in general contrived, not for the benefit of the students, but for the interest or more properly speaking for the ease of the masters, and whether he neglects or performs his duty, to oblige the students in all cases to him as if he performed it with the greatest diligence and ability". (Article II, para 15).

To paraphrase, the whole of our system of higher education beginning with the University Grants Commission, the universities in between, and the colleges at the bottom, is contrived not in the interest of education nor for the benefit of the students but solely to protect the interest of the teachers to ensure that they get their salaries on the first of each month whether they teach or not, whether they know what they teach and, in all cases, to oblige the students to accept as knowledge whatever comes out of the mouth of their teachers. Briefly the teachers are not accountable to the students.

Why was it so in Europe in the times of Adam Smith and why is it so in our times and in our country? Underlying the two there must be a common system. As for Europe and his own times Adam Smith notes: "Through the greater part of Europe, the endowment of schools and colleges arises chiefly from some local or provincial revenue, from the rent of some landed estate or from the interest of some sum of money allotted and put under the management of trustees for this particular purpose, sometimes by the sovereign himself, and sometimes by some private donor" (para 2). Smith argues that it is in the nature of this system of financing higher education that it gives rise to a system of colleges and universities which works not for the benefit of the student but for the ease and convenience of the teachers. We have adopted essentially the same system with only minor variation. A very large part of the expenses of our schools, colleges, and universities is borne by the sovereign, that is, the government and we should not be surprised that we have developed a system of higher education which fits well Smith's description of European universities in his times. The system works not for the benefit of the students but for the comfort and convenience of the teachers.

One immediate consequence of endowments or grants from the government, in Smith's words, is "The endowments of the schools and colleges have necessarily diminished more or less the necessity of application

in the teachers. Their subsistence, as it arises from their salaries, is evidently derived from a fund altogether independent of their success and reputation in their particular profession"(para 5). Simply stated, with education financed by endowments or grants from the government, with teachers' salaries assured on the first of every month whether they teach well or not, or for that matter, whether they teach at all, the teachers have little or no incentive or obligation to teach or teach well. Talking of Oxford, Smith notes: "In the University of Oxford, the greater part of the public professors have for these many years, given up altogether even the pretence of teaching"(para 8). If this was true of Oxford in Smith's days, it is all the more true in our country today. With more protective labour laws and with greater unionization of teachers, there is no need for the teacher to work for his salary. Once in position, the teacher gets his salary on the first of every month any way.

But why should a teacher not work? Why should he not teach and teach well? Is there no pleasure in teaching young persons and teaching well which they admire? Smith explains: "In every profession, the exertion of the greater part of those who exercise it, is always in proportion to the necessity they are under of making that exertion"(para 4) ; and when there is no such necessity as is the case of the teacher. His interest is, in this case set as directly in opposition to his duty as it is possible to do it. It is the interest of everyman to live at as much as his ease as he can; and if his emoluments are to be precisely the same, whether he does, or does not perform some very laborious duty, it is certainly his interest, as interest is vulgarly understood, either to neglect it altogether, or if he is subject to some authority which will not suffer him to do this, to perform it in as careless and slovenly a manner as the authority will permit"(para 7). Evidently, in Smith's view, no one, barring exceptions, works and exerts unless it is necessary to make and improve his living; no one, again barring exceptions, works for the pleasure of it.

Elaborating on the authority which may control or regulate the duty of the teachers, Smith comments on the role and effectiveness of the university and the government. Considering first the university, he says: "If the authority to which he (the teacher) is subject resides in the body corporate, the college, or university, of which he himself is a member, and in which the greater part of the members are, like himself, persons whom either are, or ought to be teachers; they are likely to make a common cause, to be all very indulgent to one

another, and every man to contest that his neighbour may neglect his duty, provided he himself is allowed to neglect his own"(para 8). It is in this context and probably as an illustration that he remarks: "In the University of Oxford, the greater part of the public professors have, for these many years, given up altogether even the pretence of teaching". There is no need to go so far as Oxford of Smith's times to meet these professors. They are there right in the midst of us.

On governmental control, Smith says: "If the authority to which he is subject resides, not so much in the body corporate of which he is a member, as in some other extraneous persons, in the Bishop of the Diocese for example; in the governor of the province; or, perhaps in some minister of State; (By state is meant government; Adam Smith is not making a distinction, so familiar to us between the minister of State and the cabinet minister!) it is not indeed in this case very likely that he will be suffered to neglect his duty altogether. All that such superiors, however, can force him to do, is to attend upon his pupils a certain number of hour, that is to give a certain number of lectures, in the week or in the year. What those lectures shall be, must still depend upon the diligence of the teacher; and that diligence is likely to be proportioned to the motives which he has for exerting it"(para 9). We know what Smith is talking about. We have only recently negotiated with the government the number of lectures and the number of minutes per lecture that a teacher will deliver in a week and it is understood on all sides that the content of the lecture is an exclusive jurisdiction of the teacher; no one can look into it or is entitled to know what it is.

Further, Smith says: "An extraneous jurisdiction of this kind, besides, is liable to be exercised both ignorantly and capriciously. In its nature it is arbitrary and discretionary and the persons who exercise it, neither attending upon the lectures of the teacher themselves, nor perhaps understanding the science which it is his business to teach, are seldom capable of exercising it with judgement. From the insolence of office too they are frequently indifferent how they exercise it, and are very apt to censure or deprive him of his office want only, and without any just cause. The person subject to such jurisdiction is necessarily degraded by it, and, instead of being one of the most respectable, is rendered one of the meanest and most contemptible persons in the society. It is by powerful protection only that he can effectually guard himself against the bad usage to which he is at all times exposed; and this protection he is most likely to gain, not by ability or diligence in his profession,

but by obsequiousness(servility) to the will of the superiors, and by being ready, at all times, to sacrifice to that will the right, the interest, and the honour of the body corporate of which he is a member"(para 9). Again probably as an illustration, Smith remarks: "Whoever has attended for any considerable time to the administration of a French university, must have had occasion to remark the effects which naturally result from an arbitrary and extraneous jurisdiction of this kind"(para 9). There is no need for this purpose to study the administration of French universities in Smith's days. The disgusting and disgraceful phenomenon is all too familiar to us.

It is not just that a teacher becomes servile to the will of the government, willing to sacrifice to that will the right, the interest, and the honour of the body corporate of which he is a member, but, the more readily he does this, the more easily and speedily he moves to the higher echelons in the administration of his college or university. The body of teachers thus gets arranged in a formal or an informal, but well recognised, hierarchy reflecting not their respective academic or teaching merit but their connections and relations with the government. As a result, the working environment in the colleges and universities ceases to be any different from that in government; an associate professor smiles only if the professor smiles, not otherwise. Critical faculty is not encouraged even among students; few teachers will take a critical question from a student without frowning.

Smith admits exceptions and grants that a genuine interest in the subject of his learning and teaching, and achievements and success in his field may motivate a teacher to better performance. Smith says: "The greatness of the objects which are to be acquired by success in some particular professions may, no doubt, sometimes animate the exertion of a few men of extraordinary spirit and ambition". But in general, "Great objects, however, are evidently not necessary in order to occasion the greatest exertions. Rivalship and emulation render excellency, even in mean professions, an object of ambition, and frequently occasion the very greatest exertions" and "where the competition is free, the rivalry of competitors, who are all endeavours to jostle one another out of employment, obliges every man to endeavour to execute his work with a certain degree of exactness." "Great objects, on the contrary, alone and unsupported by the necessity of application, have seldom been sufficient to occasion any considerable exertion"(para 4).

Thus, Adam Smith believed that competition for survival is an essential condition for exertion. We in this

country do not agree. We think that the insecurity caused by continuous competition is not conducive to honest effort. We have therefore designed a system where there is no competition and all security. Whatever competition there is, it is only at the entry point. Once in position, a teacher is assured not only of his salary every month, but of annual increments every year, and pension on retirement. One need only live and, to help in that, there is the free medical service. And now there is demand for automatic promotion so that an assistant professor may become an associate professor and then a full professor by sheer passage of time. Effort may not be rewarded and negligence may not be punished. Once this demand is granted, teachers' next demand, now commonly made by many trade unions on their onward march to socialism, will be that the sons and daughters of teachers must receive the first priority in any future appointments of teachers. With so much security from cradle to grave and beyond, what incentive, what need is there for any effort and diligence on the part of teachers?

Again, Adam Smith recognizes common exceptions. For instance: "If the teacher happens to be a man of sense (we shall say of sensitivity), it must be unpleasant thing to him to be conscious while he is lecturing his students, that he is either speaking nonsense or reading nonsense, or what is very little better than nonsense. It must too be unpleasant to him to observe that the greater part of his students desert his lectures; or perhaps attend upon them with plain enough marks of neglect, contempt, and derision. If he is obliged, therefore, to give a certain number of lectures, these motives alone, without any other interest, might dispose him to take some pains to give tolerably good ones" (para 14).

But, evidently, there are good expedients to get over such sensitivity. Smith continues: "Several different expedients, however, may be fallen upon which will effectually blunt the edge of all those incitements to diligence. The teacher, instead of explaining to his pupils himself, the science in which he proposes to instruct them, may read some book upon it; and if this is written in a foreign and dead language, by interpreting it to them into their own (like some of us read an English text aloud in the class and then interpret it in Marathi); or what would give him even less trouble, by making them interpret it to him, and by now and then making an occasional remark upon it, he may flatter himself that he is giving a lecture (I understand that this latter method is presently called 'the discussion method'). The slightest degree of knowledge and application will enable him to do this without exposing himself to contempt or derision, or saying anything that is really

foolish, absurd, or ridiculous. The discipline of the college, at the same time, may enable him to force all pupil to the most regular attendance upon this sham lecture, and to maintain the most decent and respectful behaviour during the whole time of the performance" (para 14). If there are any doubts whether Smith knew enough of the profession of teaching, this should dispel them all.

Smith knew some other types as well. He says: "If he (the teacher) is naturally active and a lover of labour, it is his interest to employ that activity in any way, from which he can derive advantages, rather than in the performance of his duty from which he can derive none" (para 7). Though Smith does not elaborate, we know this type very well. A teacher who is naturally active may not simply relax; he may write a book for the undergraduates, or better still lend his name to a book so written by a junior colleague, and get it prescribed as a text. Or, more honestly, he may write guide to successful examinations and to everything necessary to demonstrate that the guide is in fact very useful. Or, he may conduct coaching classes and use this regular duty time to canvass and work for them. With some seniority he may attend seminars and conferences and exchange examinerships. If he has some political abilities, he may enter trade union politics to ensure the solidarity of teachers, that all stand together, that there is no competition, and thereby promote a socialist revolution. He may enter university politics and get elected to various controlling bodies of the university and therefrom get himself appointed to selection committees, college inspection committees, and so forth, distributing patronage and spreading his political network and influence. With greater enterprise he may enter political proper and, with luck, move into the stratosphere leaving people to wonder and admire at the small beginnings he rose from. Such is the active minority among the teachers. The majority relaxes in comfort and peace of a secure tenure, to maintain this comfort and secure progressive improvement in it, the only effort of the part of the teachers now required is to go on strike whenever called upon by their union.

Smith points out that, in some European universities, the conditions were somewhat different and that therefore the situation there was somewhat more satisfactory from this standpoint. "In some universities salary makes but a part, and frequently but a small part of the emoluments of the teacher, of which the greater part arises from the honoraries or fees of his pupils. The necessity of application, though always more or less diminished, is not in this case entirely taken away. Reputation in his profession is still of some importance to him, and he still

has some dependency upon the affection, gratitude, and favourable report of those who have attended upon his instructions; and these favourable sentiments he is likely to gain in no way so well as by deserving them, that is, by the abilities and diligence with which he discharges every part of his duty" (para 6).

But, in general, the system of higher education is a great monopoly operating in the interest not of students but of the teachers. Let me quote Smith: "The privileges of graduates in art, in law, physics and divinity, when they can be obtained only by residing a certain number of years in certain universities, necessarily force a certain number of students to such universities, independent of the merit or reputation of teachers"(para 11) and further, "Whatever forces a certain number of students to any college or university, independent of the merit or reputation of the teachers, tends more or less to diminish the necessity of that merit or reputation."(para 10). In short, it creates a monopoly.

On the other hand, "Were the students left free to choose what college they liked best, such liberty might perhaps contribute to excite some emulation among different colleges" (para 12). But "If in each college the tutor or teacher, who was to instruct each student in all arts and sciences, should not be voluntarily chosen by the student but appointed by the head of the college; and if, in case of neglect, inability, or bad usage, the students should not be allowed to change him for another, without leave first asked and obtained; such a regulation would not only tend very much to extinguish all emulation among the different tutors of the same college, but to diminish very much in all of them the necessity of diligence and of attention to their respective pupils" (para 13).

To sum up, Smith's chief indictment of the system of higher education obtaining in his days was that it was contrived, not for the benefit of the students, but for the interest and the ease of the teachers. The indictment applies equally to the present system of higher education obtaining in our country. To change that system and to run it in the interest of the students, Smith impliedly suggested two changes: First the salary should make a part, and only a small part of the emoluments of the teacher, the greater part of which should arise from the honoraries or fees of his students. Second, the students should be left free to choose what college they liked best and, in each college, choose the tutor or teacher who should instruct them in each subject; and further that, in case of neglect, inability, or bad usage, on the part of a teacher, the students should be allowed to change him for another, without leave first asked and obtained. There is the implied corollary, namely, that

the students should bear the full cost of their higher education. In essence, Smith suggests that the students should directly or indirectly engage and pay the teachers who are worth their price and bear their full cost. There is little doubt that, if we can work a system of higher education on these principles, it will make the teachers more accountable, the students more responsible, and the expenditure more fruitful.

Let us now see how such a system will look and work. There are two key elements. The first is the heretical proposition that the teachers in colleges and universities should cease to be salaried employees and that, instead, they should become independent professionals like the engineers, architects, doctors, lawyers, musicians, singers, commercial artists, and host of others, who live not on assured monthly salaries but earn their living by their services to the society, in particular, to their clients. More specifically, the teachers in colleges and universities should not be supported by an assured monthly salary but, instead, should earn their living by service to their clients, namely, the students; in other words, they should subsist by the fees and the honoraries the student may pay for the course they will teach. Thereby, the teachers will become accountable to the students and hence more honorably in their own right. The second key element, which indeed is a corollary of the first, is that the students should pay the full cost of their higher education. Thereby, the students will become more responsible to their studies because, if they neglect, it will be at their own cost.

In this system of higher education, the primary function of colleges and universities will be to provide the needed physical facilities, classrooms, laboratories, libraries, study rooms, etc. for the use of the teachers who wish to deliver their courses in the particular colleges or universities and to conduct examinations of students wanting to be examined in these courses. These shall charge the teachers a certain fee or a rent based on the full cost of the facilities and services they shall provide. Of course, this will be necessarily different for teachers in different subjects or branches depending upon the costs involved; for instance, more for medicine, engineering, and technology than for arts and science; and more for natural sciences than for social sciences and humanities. In each branch, the total quantum of fee or rent to be charged to the teachers may be distributed among them in proportion to their respective earnings subject to a certain minimum. A teacher may attach himself to more than one college or none at all and may give lectures at one or more colleges and/or in his own premises.

The students may enrol for particular courses

delivered by particular teachers and pay for fees prescribed by the respective teachers. The colleges or universities should collect these fees and pass them on to the respective teachers. The colleges and the universities shall not charge any fees to the students for attending any lectures delivered in their premises; the students have already paid for them. But they may charge some fees directly to the students for library and reading room facilities, for conduct of examinations in particular courses, and for any extramural, extra-curricular facilities, and hostel accommodation they may provide. This should be quite independent of whether student attends any lectures delivered in the particular college or the university. A student may attend some lectures in one college and some lectures in another college paying the respective fees; or he may not attend any lectures in any college. Nevertheless, he may avail of any of the facilities of library, reading room, examinations etc. offered by a college or a university for a fee if he can afford it and if he considers the facility worth the price. As the students will bear the full cost of higher education, they will bear the cost only of what happens to be useful to them.

Research will have to be funded by the users, such as the interested industry, or by the government. It will be the responsibility of the teachers to bring in research funds by placing their project proposals before appropriate funding agencies. If any equipment comes along as part of the project funding, it will come on loan from the funding agency and shall remain in the exclusive custody of the concerned teacher. The function of the college or the university shall be to provide the needed library and other facilities together with any equipment which it may have of its own and which may be useful to the project for which it will charge a certain rent. If the teacher does not find the facilities or other environment in the particular college or university agreeable or if, for any personal reasons, he desires to move to any other college or university he may do so with the approval of the funding agency provided he is welcome in the other place. In that event, the equipment on loan will move with the teacher. At the end of a project, the college or the university will have the option to buy the equipment at book value; otherwise, it will return to the funding agency. Thus, while the funding agency shall provide the necessary funds and equipment, the college or the university must provide an honorable research environment, if it wants to attract good researchers to its campus; a thing sadly lacking today. At present, it works the other way round. The university or college gets the research funds first and then appoints researchers. When they do, they think that they have obliged the researcher and do not deem

it necessary to treat him any more honorably. This is the reason why there are research funds, some competent researchers, but no research environment and therefore little research on our campuses.

To sum up, the primary function of the colleges and universities should be to provide certain facilities to teachers who deliver lectures and/or bring in research projects and funds on their campuses and also to provide certain independent facilities to the students. It should be left to the colleges and the universities to decide what facilities they may provide and what fees or rents they may charge to the teachers and the students. These should not be regulated, the only condition being that that the colleges and the universities remain non-profit making or rather non-profit distributing institutions; they may make profits provided they plough them in building up their assets in order to stabilize and improve their facilities and services. Competition among them will keep their charges competitive. All universities or colleges need not do everything and in a prescribed manner; different universities and colleges, particularly the colleges, can and will have different objectives in regard to the subjects, the level of courses, the competence of the teachers and finally the clientele of students that the teachers attached to them may attract and cater to. For instance, some colleges may keep open for 24 hours particular facilities such as classrooms, libraries, or reading rooms, and charge differential rents for different hours. Some colleges may emphasize providing food and accommodation to students at economic rates. Resources and needs both vary from place to place and, for them to match one with the other, full flexibility is necessary. For the same reason, there need be no regulation of the fees the teachers may charge to the students for the courses they will teach. Competence of teachers and needs of students both vary and the two can be matched only by variation in the fees. In any case, competition among the teachers will keep their fees competitive and, if some make large incomes, they will be liable to income-tax like all other professionals are. There is no need to treat teachers differently from the other professionals.

It is necessary to recognize that, even in the same branch of learning, the competence of teachers as also the needs of students vary greatly. The bane of the present system of higher education is that it tries to standardize the teacher and the taught by means of regulations. Even the Open Universities have not been able to escape this mania for standardization. They are trying to develop new teaching methods, such as by correspondence, but the courses and the teaching

materials continue to be standardized. Above all, it is obligatory for their students to study their courses necessarily through the prescribed method and operated by salaried teachers. As a result, the outcome of the universities, both open and closed, is a standardized but nevertheless nondescript product stamped with degrees and diplomas by the universities because the government has given them the exclusive license to do so.

There is concern regarding the nondescript character of the graduates that the universities are turning out every year and the large unemployment that prevails among them. It is widely recognized that at least one reason for the unemployment among the graduates is that a great number of them are plainly non-employable; in other words, that the university degrees and diplomas they have taken are worthless. Anyone who has sat on any selection committee knows this all too well. Nevertheless, a university degree or a diploma continues to be a requirement for any job and, consequently, the colleges and universities continue to be crowded with students hunting or fishing for a degree or a diploma. There is a real danger of the entire system of higher education coming to a grinding halt under the mounting burden of students entering and wanting to enter the system.

To save the system from this pressure, there is now a proposal to go to the other extreme and delink university degrees from employment. Effectively it means admitting that higher education presently being imparted is useless and that all the public expenditure on it is a waste. There is an element of truth in this but the remedy is not to delink degrees from employment. If a degree is not a prerequisite for employment, something must take its place and that something can only be education in one form or another. Hence, the remedy lies in making the higher education recognizably more useful, and ask the students to bear its full cost so that they may decide whether what they get is worth its cost.

One way to make higher education more useful is to discard the notion of a standardized education and allow variation in the subject coverage, in the subject combination, and in the level at which each subject is taught and learnt. It may be said that the universities are already trying to do this by providing more courses and allowing more and varied combinations of them. Inevitably it adds to the cost of higher education. But that is not the point, the point is that even if a university constructs a hundred courses in a subject, they will all be standardized and a standardized course can provide the same variation as an individual professional teacher can provide to suit the needs of the class of students which he attracts.

We need not rule out a set of courses which the universities on their own may construct or formulate. Essentially, these will be the courses devised and delivered by the teachers attached to the university, attached on terms and conditions mentioned above and not salaried. Some colleges may also arrange for the teaching of these courses by attracting or otherwise arranging with the teachers who are willing to teach the course according to the syllabi prepared by the university. The students will attend the lectures, if they are useful, and pay the prescribed fees. The university may then award degrees or diplomas to students successfully completing certain sets of these courses after duly evaluating their performance. If the university degrees have any market value, the students will take the examinations and pay the examination fees.

To appear for these examinations, the student should have done the first degree before he may appear for an examination leading to the second degree, if the degrees are graded; for instance the student should have B.A. degree before he may appear for an M.A. degree examination. But it is not necessary that the student should have attended a certain number of lectures on the campus of the university or in a college recognized by the university for the purpose; he may have taken a correspondence course, or studied by himself with guides written by expert teachers, or he may simply want to take a chance at the examination as at present many students do. In any case, it must not be obligatory for a student to attend a certain number of lectures in a university or a college for him to qualify for appearing for an examination, for therein lie the roots of the present monopoly of teachers. To repeat what Smith said: "The privileges of graduates in arts, in law, residing a certain number of years in certain universities, necessarily force a certain number of students to such universities independent of the merit or reputation of teachers" (para 11) and further, "Whatever forces a certain number of students to any college or university, independent of the merit or reputation of the teachers, tends more or less to diminish the necessity of that merit or reputation" (para 10). In short, it creates a monopoly as it has.

It may be said that the proposed system will convert the universities and colleges into coaching classes preparing for certain examinations. But, except for the self-righteousness of the teachers sitting in the universities and colleges; there is no reason to refer to the coaching classes in such derogatory tone. One merely has to witness students paying the fees of the coaching classes and, on their own, lining up in front of their classes waiting for the first batch to leave so that they

themselves may get front seats. Why do students attend the coaching classes voluntarily and not attend the lectures delivered by teachers in the universities and colleges even when it is obligatory for them to do so? Let me quote Smith, once again : "Where the masters, however, really perform their duty, there are no examples, I believe, that the greater part of the students ever neglect theirs. No discipline is ever requisite to force attendance upon lectures which are really worth the attending, as is well known wherever any such lectures are given. Force and restraint may, no doubt, be in some degree requisite in order to oblige children, or very young boys, to attend to those part of education which it is thought necessary for them to acquire during the early period of life; but after twelve or thirteen years of age, provided the master does his duty, force or restraint can scarce ever be necessary to carry on any part of education. Such is the generosity of the greater part of young men, that so far from being disposed to neglect or despise the instructions of their master, provided he shows some serious intention of being of use to them, they are generally inclined to pardon a great deal of incorrectness in the performance of his duty, and sometimes even to conceal from the public a good deal of gross negligence " (para 15). If true, it should put to shame any university or college teacher whose students enter the class after he has arrived while some of them leave before he has finished his lecture. It will upgrade the universities and the colleges if they perform as well as some of the coaching classes at present do.

Moreover, it is not necessary that all colleges confine themselves to coaching students for the university examinations. Some colleges, if they have the competence and confidence in their teachers, may accept the same university courses but conduct their own examinations and offer their own degrees or diplomas to successful students. Or better still, those with greater vision and more dynamism, may formulate their own courses, attract necessary teachers, conduct their own examinations, and offer their own degrees or diplomas. In their case, they shall be judged by the quality and utility of their product. This was essentially the idea behind the concept of autonomous colleges. It did not go very far. On the one hand, the universities did not want to lose their monopoly. On the other, among the colleges, there were not many takers of the autonomous status. Few would want their students to tell where they studied. Such is their pride in what they are doing.

It may be said that, in the system being proposed, subjects and courses which have some economic value only will survive and thrive. This is of course true. But,

with limited resources and the rising cost of higher education, a large part of higher education will have to be justified only on grounds of its economic returns. It is commonplace to refer to education as investment in human beings. This is of course true, but we need to make a distinction between, say, primary education and higher education. Primary education is investment in human beings with emphasis on human beings. Higher education is also investment in human beings but now with emphasis on investment and, as investment, it must be judged by its economic returns. In other words, the market must support it vis-a-vis other forms of investment.

True, everything that the market will not support is not socially or culturally useless. In fact, there are a great many things which are socially or culturally valuable but which the market will not support, not because people do not understand their social or cultural value but because they have other priorities. These things shall not survive unless supported by the State, that is, by the government at least for a while. With very limited resources, such a report will necessarily have to be highly selective and with a maximum eye on economy.

In the field of higher education a number of subjects, for instance, most classical languages such as Sanskrit, Pali, and Ardhamagadhi, will need such a support. I understand that even Marathi, as a subject of higher education, will not survive without State support or unless made obligatory using the monopoly power of the universities. I wonder which humanities or social sciences will survive the test of the market in the sense that a teacher shall make a reasonable living by the fees his students will agree to pay. Some State support in such cases is needed and justified but it will have to be highly selective. For instance, all such subjects cannot and need not be supported in all the universities on the specious ground that each university must be complete in itself capable of providing whatever is called a wholesome education, when, in practice, it is found that most departments in a university have hardly any mutual communication and that some, which in fact should be integrated, are not even on speaking terms. In a number of colleges, certain subjects are offered not because there are students to take them but because there are teachers who must be supported for life. It is necessary to work out the cost of present support to each one of such subjects and teachers. It will then be difficult to avoid the question of priority, selectivity, and economy. Moreover, it is necessary to ensure that the necessary support is given in such measure and form that it does not degenerate the teacher losing all incentive to effort

and scholarship. Subjects which are socially and culturally valuable, but which the market will not support, certainly deserve and need support from the government; but they also need to be taught by teachers who pursue scholarship and who conduct their profession with an innate pride, dignity, and honour.

Let me now turn to the other element of the proposal, namely, the proposition that students should pay full cost of their higher education. E.J. Mishan (E.J. Mishan, *Some Heretical Thoughts on University Reform*, *Encounter*, March 1969) has argued the case ably and I propose to adopt more or less his argument. It is argued that it is not necessary that the students bear the full cost of higher education; that higher education is an investment and will pay for itself; it will increase the earnings of the beneficiary students and the government will recover its costs through consequent higher tax receipts. But, as Mishan points out, if this is true of costs of higher education, it should be true of all private investment, whether in agriculture, buildings, or industrial plant and machinery, and it may be argued that all private investment may be financed by free grants from the government; that it will pay for itself in due course. But, this is not done for the simple reason that there is no guarantee that every investment will pay for itself; there is no reason to treat differently students' investment in his own higher education.

We may formulate a more general principle. Whatever cannot be given free to everybody at public cost and therefore where the beneficiaries are only a few and selected, the full public cost should be recovered from the beneficiaries. For instance, primary education is in principle free to all but higher education is not. Hence, the student beneficiaries of higher education should pay its full cost. We may state the same principle somewhat differently. Where there are private benefits arising from public expenditure, and where the private beneficiaries are identifiable, the costs should be recovered from the beneficiaries, not necessarily immediately, but at least over a period. If this is not done, and most often it is not done, those who get the benefits get them free and often at the cost of the non-beneficiaries.

A more genuine objection to the principle that the students should bear the full cost of higher education is that it will be harder on the poorer students. This is indeed true. So long as our society tolerates inequalities of income, the children of the rich will continue to enjoy some advantages over the children of the poor. There is no denying that something should be done to compensate for the disadvantages of the poor. But the remedy is not to make the higher education free or highly sub-

sidized as at present. The reason is that the poor in this country are not few; in fact, they constitute the majority. Moreover, even among the poor, one must make a distinction between those who will pursue higher education and who will not. With the spread of technology and the consequent trend of aspiration towards expertise and status, the difference between the educated and non-educated is becoming wider than the difference between the born-rich and the born-poor. Therefore, a satisfactory remedy seems to be that the government should make available long term loans to anybody who desires to pursue higher education at any university or college.

But it is not unlikely that in harder cases even this solution may not meet the problem and it may be necessary, in deserving and needy cases, to convert a part or the whole of the loan into a grant. In a country where the majority is poor, what is a deserving or a needy case becomes essentially a matter of political opinion and may have to be left to the political process to determine. Nevertheless, it should be borne in mind that even a poor after he receives proper higher education, improves his earning capacity and in fact begins to earn much more than he would ever have without that education. Therefore, even the poor student owes it to the society that he repays at least part of the cost of his higher education. Hence, while a part of the loan may be converted into a grant, it should be so done as never to take away the pressure that it is a loan and that it has to be repaid whenever possible. Anything given free is likely to be misused and will defeat the very purpose for which it is given. While the poor must be helped, utmost care is necessary, that, in the process, they are not demoralized.

An allied case is that of women students. It is said that if a woman took a loan to pursue higher education, that would discriminate against her marital prospects, since by incurring debt — 'mortgaging her future' — she would bring a 'negative dowry' to the marriage. It seems that the objection is wrongly conceived. Higher education, quite apart from the status and other inherent advantages it confers, does enhance one's earning capacity and a working woman a woman with capacity to earn is rightly regarded as asset in the family. It is therefore only proper that one who wants an asset should accept the liability of a loan from which the asset is built. Moreover, the pressure of repaying the loan may prove socially beneficial at least in two ways. First, the husband will let the woman work and not ask or force her to sit at home wasting all the expense of education she has received. Second, she may decide to postpone bearing children until a good part of the loan was repaid.

Thus, the principle that a student should meet the cost of his/her education from own or borrowed funds, besides giving woman a better and equal status in the family, may result in some social benefits.

When loans are given, we need to take into account the possibility that a student may fail to take a degree or may fail to get a job and may therefore have a genuine difficulty in repaying the loan. While some relief is needed and justified, automatic waiver of the loan has to be avoided because that will open the loan system to abuse and inevitably reduce the incentives for the borrowing student to make the best of his time at the university. Such contingencies could, however, be met in several ways. One would be to set up a semi-governmental agency which, in consultation with the university authorities, could agree to meet some portion of the loan, in special cases the whole of it, along with conditions relating to his future earnings. Obviously, there can be, and should be, ancillary provisions, to take care of such contingencies as, for instance, in the case of failed ones.

For our purpose, the essential conditions are the following : First, loans should be available for higher education to any student who is willing to borrow and repay on given terms and conditions but without any restrictions on his choice of subjects, teachers, and institutions provided, of course, he studies at an institution recognized for the purpose and the teacher is one attached to such an institution; if a student chooses to study with an unattached teacher, he must pay the teacher's fees out of his own funds. Second, there should be provision, in certain deserving and needy cases, to convert some of the loans either partly or wholly into grants. Third, it is out of these loans or grants, that the students shall pay the chosen teachers for the chosen courses and to a smaller extent to the colleges and universities for the services they provide. The colleges and universities will subsist mainly on the fees or rents they will charge to the teachers and to a smaller extent to the students for the facilities they will provide. There will thus, be a total accounting of public costs of higher education, by subjects, by courses, and by regions; an accounting of who provides which services and at what costs, and who bears and shares these costs.

This brings us to the second objective of reform of higher education, namely, to make the student more responsible to make him aware that, by not attending to his studies, he is wasting not only public money but also the prime period of his life. The present student apathy is due to two reasons. One, the education being dished out does not interest him and he plainly sees that even

the teacher does not take it seriously. The underlying reason, as we have emphasized, is that in the present system the teacher is not accountable to the student. In the proposed system, the teacher will earn his living by the fees the student will pay voluntarily. This we expect will radically change for the better the present teacher-student relation : The teacher will take his teaching more seriously and will become directly accountable to the student; the student on his part will become more responsible and take his studies more seriously. If this happens, half the battle is won.

The second reason for student apathy is that at present higher education is either free or is highly subsidized and, consequently, the colleges and universities are becoming increasingly dependent on public funds. Let me quote what Mishan said in the context of British universities in 1967 which I suppose applies to our case equally well. : "The general impression, shared by the public and academics as well as students, is that the universities, being financed by the public funds, are de facto public property. The affairs of the university are therefore as much as the business of the students who are its customers, so to speak, as they are the business of the staff hired to serve them. Both student and staff are seen, through this distorted vision, to be equally vulnerable — both apparently being dependent on public funds — and the question of apportioning authority between senate, staff, and students seems a proper subject of debate, negotiation, and ultimately of struggle. Any successful defiance of the university authorities by sheer physical numbers acts on them like a heady drought. And since agreements, open or tacit, are known to be grounded in expediency rather than in mutually accepted procedures, they are regarded by all as temporary only. An atmosphere grows in which it seems that virtually anything can happen, with publicity always close at hand. In the circumstances, the activities of a faction of extremists ready to take the initiative at a tactical moment, exercises an immoderate influence on the student body.

"This question of students' rights along with the occasional rowdyism and incipient violence will hopefully resolve itself once the universities take their place in society as self-supporting and independent institutions, their full costs of research and teaching covered by fees supplemented by their endowment income. Once the students are obliged to pay full cost fees from their own resources with access to loans, if necessary, calls by the militants for student solidarity, for strikes, sit-ins or sit-outs, will have less appeal. In any case, if they do waste money it will not be the tax-payers, it will be their own", (Mishan 1969).

What Mishan said about the student attitudes to free or highly, subsidized higher education is equally true of teacher attitudes to higher education where their salaries, allowances and post-retirement benefits are all guaranteed by the government. Under the circumstances the teachers align themselves naturally and easily with the other government employees with this difference that, while the other government employees are engaged in the routine administration of government, the teachers are supposed to be engaged in the sacred function of educating the next generation and of advancing science, culture, and learning in general. With no cost-benefit calculus, the relation between the teachers and the government has become a one-way affair. The teachers ask and the government grants. In putting up their demands, the teachers have not hesitated to use the meanest of the means and, having allowed a monopoly to grow, and, in the absence of an alternative the government succumbs. If the teachers cease to be employees with salaries etc. guaranteed by the government and instead become independent professionals who must earn their living by their services to their clients, there will be little room for strikes, go-slows, and work-to-rule agitations; the teachers may sit at home at will but at their own cost.

I hope many will agree with this diagnosis of the present situation in the higher education and, at least in principle, with the remedies being suggested. But most likely, it will be said that the proposed system is so radically different from the present one that a change from the one to the other is well nigh impossible. This is of course true. So radical a reform cannot be done in one sweep, it will have to be brought about gradually.

A beginning must be made by freezing the existing monopoly structure at its present level. More specifically, public assistance to higher education in the form of grants to the universities and colleges, staff strengths and salary scales etc. should be frozen at their present level. An existing teacher in a university or a college will be allowed to continue undisturbed in the present pay-scale and according to the present terms and conditions of service; but these will not be revised any more whatever be the prices and whatever be the revisions in pay-scales and conditions of services in government and other places. In return, a teacher will be allowed to charge and collect, through his university or college, a fee from the students attending his course of lectures subject to the condition that a part of the fees so collected, say one half or one third, will be surrendered to the government. The university or college may also ask for a share of the fees so collected as rent for the

facilities it provides. Whatever of the fees is left to the teacher should not be meagre and should provide sufficient incentive for him to gradually shift from the old to the new basis of living; that is, from the salaried to the professional style of existence.

The government shall not sanction any new universities or colleges with any sanctioned staff nor shall sanction new positions of teachers in existing universities or colleges. Vacancies occurring when a teacher retires or otherwise leaves the service will be filled not by new recruits but by existing teachers moving from one position to another or from one institution to another. This will make the universities and colleges competitive in their bid to invite and retain good teachers; they will try to improve their facilities and work environment. It will also gradually reduce the number of salaried teachers in universities and colleges. All new entrants to the teaching profession will enter on terms and conditions mentioned above briefly, they may attach themselves to a university or a college, if allowed by the institution, but shall earn their living from the fees which the students shall pay. New universities and colleges may be opened but without any sanctioned posts of teachers. The government may initially sanction small capital grants like seed money; but, ultimately, they must build their assets from the fees and rents they may charge to the teachers and students making use of their facilities.

Funds saved because of progressive reduction in the number of salaried teachers as also new and additional funds provided for higher education will be used mainly to give loan scholarships described above. The students will use these funds, besides their own, to pay the tuition fees which some teachers, old and new, may charge and the fees or rents which the universities or colleges may charge. It will be thus that the existing system will be gradually displaced by the reformed system. Undoubtedly, many details will have to be worked out. But, it is necessary to initiate a process which will seep into the present monopoly structure of higher education and eventually bring it down.

To Our Readers

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

Buddha & Mahavira on Education

Ramlal Parikh*

‘सा विद्या या विमुक्तये’, ‘न हि ज्ञावेन सदृशं पवित्रायिह विद्येह विद्यते’ ‘तद्विद्धि
प्रणिपातेन, परिश्रमेन सेवया’

etc. are well-known statements from Sanskrit scriptures which highlight the aims, ideals and conception of education in ancient India as well as the means to acquire the same. Similar statements/quotes can be added from Pali and Prakrit texts to indicate that education has been uniformly considered in all streams of Indian religious tradition as *menas* for ‘total development’ leading to ‘Ultimate Enlightenment’ and ‘Liberation’ (*Vimukti*). However, in the process of enlightenment, while the theistic sects could bank upon an element of ‘Divine Will’ or ‘Grace’ in spite of the intricacies of Karma theory (*Karma-Siddhanta*), the doctrine preached by the Mahavira and the Buddha could solely rely upon human-exertion (*Srama*) alone without the intervention of any outside Authority (i.e. God), which further necessitated a correct understanding of the right knowledge and right conduct to progress in the right direction. In spite of the doctrinal differences concerning the nature of the Extreme Path (*Tapo-marga*) preached by the Mahavira and the Buddha respectively, ‘Knowledge’ (*Vijja Jnana*) accompanied by ‘Rightful Conduct’ (*Acarana, Caritra*) alone could be helpful to a monk (or even to a householder to a lesser extent) in the process of self-development. Centred around the monastic discipline, this particular aspect ultimately led to a perfect blend between the theoretical aspects of knowledge and its practical application which became the hallmark of the system of education imparted particularly in the famous Buddhist monasteries of the subsequent period.⁽¹⁾

While the system of education prevailing in the monasteries, Jaina as well as Buddhist, can be well analysed on the basis of subsequent sources, it is more important to speculate what could have been the original conception of these two Great Teachers who functioned more as Path-finders and Way-farers after attaining the state of enlightenment or perfection by their own exertions.

The spiritual and moral authority for teaching and

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guidance in Indian tradition has always remained with the ‘*Apta*’ i.e. “the One who has realized”. Both, Mahavira and the Buddha attained the state of enlightenment before embarking upon a career of teaching and missionary activity. However, while the Jaina Sutras do not mention his doctrines as his discoveries but as attestations of old established truths (*pannatta*) realized by following the already established path, it is the Buddhist texts which highlight the Buddha’s endeavour of carving out his own way by rejecting wrong beliefs and finding out right belief and right conduct.⁽²⁾ It is therefore refreshing to add here a few verses from the Pali Sutta texts in this context. Commenting on the qualities of the Great Teacher, the two Yakshas in the *Hemavatasutta* of the *Sutta Nipata* state:

“विज्ञाय चेव सम्पन्नो, अथो संसुद्ध चारणो ।
सम्बरस आसवा खीणा, नात्ये तस्स पुनब्बज्जो ॥
सम्पन्नं मुनिनो चित्तं, कम्पना व्यपथेन च ।
विज्ञाचरणसम्पन्नं, हन्द पस्साम गोतमं ॥

"He is endowed with knowledge, and his conduct is pure, all his passions have been destroyed; there is no new birth for him."

"The mind of the Muni is accomplished in deed and word; Gotama, who is accomplished by his knowledge and conduct, let us (go and) see."

(*Sutta Nipata*, 1.9.11-12)

Vijjacaranasampanna (i.e. accomplished by knowledge and conduct) here particularly stresses upon utility of that knowledge alone which is accompanied by conduct. The *Navasutta* of the *Sutta Nipata* highlights the qualities of the Guru (*Guru-mahima*) and further argues, “even so how will a man not having understood the Dhamma and not attending to the explanation of the learned and not knowing it precisely, not having overcome doubt, be able to make others understand it?”

“तथेव धम्मं अविभावयित्वा बहुमुत्तानं अनिसाधयत्वं ।
सयं अजानं अवितिण्णकंखा, किं सो पेरे सक्खति निज्झयेतुं ॥”

A number of verses in the *Sutta Nipata* highlight the nature of Ignorance or *Avijja* (Avidya) as 'Mahamoha' or '*parama-mala*' by cleaning which along through '*Vijja*' (Vidya) Bhikkhus can become clean and ensure that there is no rebirth for them. A few of these verses are cited below :

“अविज्जाय निवृत्तो लोको, वेविच्छा पमादा नप्पकासति ।
जप्पाभिलेपनं ब्रूमि, दुक्खं अस्स महब्भयं ॥”

(5.2.2)

"With ignorance is the world shrouded, by reason of avarice it does not shine; desire I call its pollution, pain is its great danger.

Also

“अविज्जा हयं महामोहो, येनिदं संसितं चिरं ।
विज्जागता च ये सत्ता, नागच्छन्ति पुनब्भवन्ति ॥”

(3.12.6)

"For this *Avijja* is the great folly by which this existence has been traversed long, but those beings who resort to knowledge do not go to rebirth."

Further as stated in the *Dhammapada* (XVIII 243):

“ततो मला मलतरं अविज्जा परमं मलं ।
एतं मलं पहत्वा न निम्मला होथ भिक्खवो ॥

"But there is a taint worse than all taints — ignorance is the greatest taint. O mendicants ! throw off that taint and become taintless!"

For acquiring *Vijja* or the state of '*panna*' (*Prajna*) *appamada* (*apramada*) or avoidance of indolence is essential. As stated:

अप्पमादेन विज्जाय अब्बहे सल्लमत्ततोति ॥

(*Sutta Nipata* 2.10.4)

"By earnestness and knowledge let one pull out his arrow".

Similarly

“असज्झाय मला मंत्रा” —

"The taint of prayers is non-repetition." (*Dhammapada* XVIII 241)

Like *Gita* which considers knowledge as most-purify-

ing (न हि ज्ञानेन सदृशं पवित्रमिह विद्यते),

Buddhist texts highlight the purifying role of knowledge :

सद्भाय तरति ओघं अप्पमादेन आण्णवं ।
विरियेन दुक्खं अच्छेति, पज्जाय परिसुज्झति ॥

(*Sutta Nipata* 1.10.4)

A number of verses emphasize upon the company of the learned, while others stress on remaining alone rather than in the company of fools :-

तस्मा हवे सप्पुरिसं भजेथ, मेधाविनं चेव बहुसुतं च ।
अज्जाय अत्थं परिपज्जयानो, विज्जात धम्मो सो सुखं लभेयाति ॥

(*Sutta Nipata* 2.8.8)

Aspects of learning, education, learning of crafts (*sippa, silpa*), good behaviour, company of learned are considered as 'most auspicious' in the *Mahamangala Sutta* of the *Sutta-Nipata*

असेवना च बालानं पण्डितानं च सेवना ।
पूजा च पूजनीयानं, एतं मङ्गलमुत्तमं ॥
बाहुसच्चं च सिप्यं च विनयो च सुसिक्खितो ।
सुभासिता च या वाचा एतं मङ्गलयुत्तमं ॥

(2.4.2,4)

Similar sentiment is most beautifully expressed the *Dhammapada* (X.V. 208).

धीरं च पज्जञ्च बहुसुतं च
घोरम्हसीलं वतवत्तमरियं ।
तं तादिसं सप्पुरिसं सुमेघ
भजेत नक्खत्तपथं व चन्दिया ॥

"Therefore, one ought to follow the wise, the intelligent, the learned, the much enduring, the dutiful, the elect, one ought to follow a good and wise man, as the moon follows the path of the stars."

Notes and References

(1) Bapat P.V. 2500 years of Buddhism, p. 176

(2) For further discussion, see, Deo S.B. History of Jaina Monarchism p.76

Goal Oriented Research Stressed

Prof. A.S. Paintal, former Director-General of the Indian Council of Medical Research, has pleaded for a more goal-oriented, vigorous and intensive approach in medical research. He was speaking at the 26th Foundation Day of the Industrial Toxicology Research Centre (ITRC) in Lucknow recently.

Observing that though research and achievements in the field of medicine were more "visible" than in other fields, Prof. Paintal exhorted scientists to get out of the respectability syndrome that stems from finding publication in standard journals, the number of research papers published, and the frequency with which they were cited and get some good work done.

"We publish papers not merely to elicit comments or praise from experts in the field, but to achieve goals." He lamented the fact that such goals were largely missing in Indian medical science, or programmes were of so broad a canvas that scientists lost sight of the purpose. "We are for ever preparing meticulously of the great banquet, but (the process) we never get there".

Citing examples of scientists in the U.K., Germany and other countries, Prof. Paintal urged Indian scientists to achieve reasonable goals in shorter time spans, without compromising on quality and depth. For that, he felt, a proper work atmosphere and ethic was necessary — another factor which he found generally lacking in the Indian ap-

proach.

The recipe for success, according to Prof. Paintal, was grit, determination, hard work and stamina, as also a sense of pride, even "ruthlessness, if need be, to 'get there', to win the race against the rest of the world".

Dr. M.M. Dhar, ex-director, Central Drug Research Institute (CDRI), who presided, said that though it was natural for research in the little studied subject of toxicology to be spread over a wide range of subjects, studies were generally sacrificing depth for productivity. He considered areas such as animal immunological response to organic and inorganic toxins and phototoxicity still open for further research.

In his welcome address, Dr. P.K. Ray, Director, ITRC, highlighted the work done at the centre.

A number of breakthroughs were achieved by ITRC in the field of technology. It has developed an instrument for disinfecting drinking water. The device, working on a small strength of electricity, is available in two sizes for use at home or for travel purposes and can disinfect water at different levels of pollution. The device is equally efficacious for bacteria and viruses and will prove to be of much help in the prevention of various water-borne diseases like hepatitis, polio and enteric infections, which take a heavy toll of life every year in India. A result of three years of painstaking research by Prof. P.K. Ray and Mr. V.K. Sehgal, the instrument is the first of its type in the world it is claimed. Further

research is being carried out in collaboration with the National Institute of Virology, Pune. A patent has been applied for by ITRC.

Dr. S.K. Khanna and Mukul Das have also been awarded for the development of a kit which detects adulteration in edible oils. Even a housewife should be able to use the kit, it is claimed, since the procedure is easy and simple. A patent has again been applied for.

In yet another breakthrough, ITRC scientists have isolated four highly efficient bacteria that can bring about a fast degradation of crude oil. Oil is a major cause of pollution in the seas and contains polyaromatic hydrocarbons that are cancer producing. Oil spills affect fish and other marine life and oil often thus enters the food chain. What is significant is that these bacteria substantially degraded these carcinogenic hydrocarbons too.

Another significant invention was the development of an Aqua Life Guard — a jacket that can float on water and traps plastic and polymeric substances which are non-biodegradable and thus a significant source of pollution and toxins. The device costs a mere Rs. 200 and has been developed by Mr. C. Venkateswar and Mr. R.K. Hans.

On its continuing programme to survey water, food and air a sample survey by the ITRC from seven areas of Lucknow revealed that coloured sweets sold by street vendors had appreciably high use of non-permitted colours. Similarly, one third of loose, powdered turmeric and red chillies showed presence of artificially added colours. The presence of "*Lathyrus*

sativus" kesari dal in cereals, pulses, chana dal and besan samples was detected by the institute. Kesari dal contains toxins that damage the brain, causing blindness and even death. A large number of bread samples have also been found contaminated.

COMBIME Programme

The Department of Educational Administration, Faculty of Education and Psychology, M.S. University of Baroda, recently organised the second Competency Based Institutional Management Education (COMBIME) Programme for the Baroda school Principals in collaboration with the National Institute of Educational Planning and Administration (NIEPA), New Delhi, and the District Education Office, Baroda, Government of Gujarat. NIEPA having extensively researched into the requisite competencies for Principals shared these data with the Department of Educational Administration. The results of the research were a list of 54 specific competencies classified into 8 categories. The categories were : (1) Academic Areas of Management, (2) Personal Management, (3) Financial Management, (4) School Plant and Infrastructure, (5) Linkage and Interface, (6) Student Services, (7) Methods and Procedures, (8) Behavioural competencies,

The Department of Educational Administration reviewed these categories and decided to have competencies in terms of Behavioural competencies, Personnel Management, Financial Management, Academic Areas of Management. Remaining inputs were provided through self-Instructional modules prepared by NIEPA. There was a Panel Discussion on Secondary Education Act in Gujarat State

which was very well received by participants.

Fifty Principals participated in the First and Second COMBIME programme. Professor Sneha Joshi, Head Department of Educational Administration was the Director of the programme.

Plant Molecular Biology Centre

A Plant Molecular Biology Centre at a cost of Rs. 2.09 crore, to be spent during the next five years, has been set up to carry out research in the frontier areas of plant molecular biology. This was revealed by Dr. P.V. Sane, Director, National Botanical Research Institute while presenting a report on the activities of the institute during the past one year on the occasion of NBRI's Annual Day in Lucknow recently.

He said that scientists of the institute worked on 36 research projects. Out of these, 10 were fundamental and the rest applied in nature. The project covered all the six major divisions of the institute. The Director said that five new projects and three sponsored projects had also been started.

Delivering the lecture on the theme – Trees for Life - Dr. N. D. Tiwari, Director-General Indian Forest Research Institute and Education Board, Dehradun, highlighted the role of the plants in human life. He warned that if the depletion of the tropical forest was not arrested forthwith they would be wiped out during the next 50 to 100 years. In that case, the conversion of carbon dioxide into oxygen would suffer a great loss and the atmosphere would be filled with the same amount of carbon dioxide as has been released since the Industrial

Revolution.

Computer Screens for the Blind

The educated blind now have access to any text stored on computer through the world's first graphic and Braille communication system developed by biomedical engineers in New Delhi. The system developed jointly by scientists at the Indian Institute of Technology and the All-India Institute of Medical Sciences will offer blind individuals access to any material available on floppy discs.

The computer-based system will allow them to work independently on word-processing and stenographic tasks and help them scan maps and diagrams.

Special software in the system converts English text into illuminated dots representing Braille characters on the screens and an official device allows the blind to sense these dots and 'read' the text.

The entire device is expected to cost just a few hundred rupees. "We've tried to keep the cost as low as possible", says Prof Sujoy J Guha, a biomedical engineer at IIT who led the team that developed the system.

Women and the New Paradigms of Development

The International Centre for Science, Culture and Consciousness (ICSCC) is organising the 6th International Conference on "Women and the New Paradigms of Development – Recasting Philosophy, Policy and Programme" at the Indian Institute of Technology, New Delhi on 7th - 9th March, 1992. Sponsored by UNESCO and co-sponsored by the Banaras Hindu University and the Indian Institute

of Technology, the conference provides an opportunity to evolve an integrative, ecological, holistic and meaningful approach and philosophy to women's development, especially in the context of the population explosion and environmental hazards to Mother Earth that has sustained and nurtured humanity for several millennia. Further details with regard to participation and presentation of papers may be had from Prof. Kishore Gandhi, Secretary-General, ICSCC, 15, Institutional Area, Lodi Road, New Delhi - 110 003.

Global Database on Rotifera

The Bioinformatics Centre, Madurai Kamaraj University has produced a Global Bibliographic database on Rotifera. Rotifers are used as live food in aquaculture, bioassay animals in ecotoxicological tests. The global bibliography covers applied and basic aspects. It covers 1696-1990 and has 6000 entries created and maintained using USESCO's CDS/ISIS software.

It is of use to aquaculturists, pollution biologists, fishery biologists, limnologists, marine biologists, zoologists, toxicologists, evolutionary biologists, taxonomists, information scientists and other researchers.

The database is available in book form or in electronic media. For further details, contact may be established with Bioinformatics Centre, School of Biological Sciences, Madurai Kamaraj University, Madurai 625 021.

Post-Doctoral Fellowships

The Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, offers some post-

doctoral fellowships in astronomy and astrophysics. The duration of a fellowship is flexible within the range of one to five years, with the possibility of conversion to a tenured position. As a newly set up institution, IUCAA offers challenging opportunities to experts in theory, observation as well as in astronomical instrumentation. IUCAA is especially looking for observers and experimentalists willing to contribute to its long term programmes including the establishment of an astronomical instrumentation centre equipped with the most modern facilities. Interested candidates should apply to Professor J.V. Narlikar, Director, IUCAA, Post Bag No.4, Ganeshkhind, Pune-411007 with curriculum vitae and list of publications. They should also arrange to send three confidential references. All relevant material should reach IUCAA by December 25, 1991. Candidates will be informed of the results of their application by January 30, 1992. The fellowship will normally commence in the second half of 1992.

National Academy of Sciences Annual Session

The sixty-first annual session of National Academy of Sciences, India, and Symposium on Environment and Development – a Scientific Approach, will be held at Meerut under the auspices of Meerut University on December 19-21, 1991. The session will be presided over by Dr. A.P. Mitra, former Director General of CSIR and attended by about 350 scientists, in all major disciplines, from all over the country. Prof. M.G.K. Menon, Dr. M.S. Swaminathan, Dr. T.N. Kho-shoo, Prof. B. Ramachandra Rao, Prof. S.K. Joshi, Director General CSIR, Prof. U.R. Rao, Secretary, Indian Space Research Organisation (ISRO), Prof. P.K. Iyengar, Chairman, Department of Atomic Energy and a number of other eminent scientists

are expected to address the session.

Sony ICD Award for Osmania AVRC

"Soil Erosion", an educational programme produced by the Audio Visual Research Centre, Osmania University, Hyderabad, recently won the 1991 Sony ICD (International Cooperation Division) award at the SONY/ICD Video Contest held in July 1991 in Tokyo. Altogether, 52 video programmes from 36 organisations in seventeen countries around the world participated in the contest.

"Soil Erosion" is a programme for college students to make them aware of the causes, types, and effects of soil erosion.

The Audio Visual Research Centre, Osmania University, established in 1983 produces programmes regularly for the UGC countrywide classroom. It has to date produced about 100 programmes on various themes from archaeology to zoology.

Markfed Offers to Fund Research

Punjab Markfed is reported to be willing to extend financial assistance to the Punjab Agricultural University for starting a special research project to develop high-yielding long staple varieties of cotton for export.

The Managing Director of Markfed, Mr Ramesh Inder Singh, said in Bathinda recently that the proposal would be taken up with the PAU authorities as it would be in the interest of cotton growers in the State. Compared to the medium staple varieties commonly sown at present, long staple varieties of cotton had a ready market in international trade. Besides, the highest quota for export was allotted to States sowing long staple varieties by the Central Government.

SPORTS NEWS

AIU Line-up for Nehru Hockey

Indian Universities Hockey Team for participation in the Nehru Hockey Tournament commencing in Delhi from 14th November 1991 was finalised after conducting trials at Kurukshetra University campus from 2nd to 5th Nov. 1991. A record number of 96 players reported for the trials.

The team comprises (1) Vivek Bajpayee (Gorakhpur), (2) Asif Mustasin (A.M.U.), (3) Trilochan Singh (Panjab), (4) Sukhvinder Singh (G.N.D.U.), (5) Naved Zia (A.M.U.), (6) Ashwani Kumar (Delhi), (7) Raman Deep (PAU), (8) Ravinder Singh Rawat (Delhi), (9) Sudhir Kumar Jain (Ravishankar), (10) Sudhir Malhotra (PAU), (11) M.H.S. Rizvi (Gorakhpur), (12) Balraj Sodhi (Kurukshetra), (13) Narinder Singh (PAU), (14) Mohit Rozario (Ajmer), (15) Prem Saran (Jiwaji), and (16) Virender Singh (Delhi).

Jr. National Badminton Championship

Indian Universities Jr. Badminton

team participated in the Jr. National Badminton Championship held at Goa from 2nd to 8th Nov. 1991.

The line-up was represented by: (1) Mr. P. Gopichand (Capt.) (Csmania), (2) Mr. Sujit Kamble (Marathwada), (3) Mr. Prem Kamath (Calicut), (4) Mr. Saket Sharma (Bombay), (5) Mr. Sanjeev Bhandwar (Nagpur) and (6) Ms. S. Nayana (Mahatma Gandhi).

P. Gopi Chand won the Championship, defeating Tushar Pai (Maharashtra), by a commendable margin of 15-3 and 15-8. Pai is selected to represent India for the Jakarta World Championship. The detailed scores of victories of P. Gopichand are as follows:

1st Round: beat Sunit (Maharashtra); 15-1, 15-0

2nd Round: beat Paresh Prasad (Karnataka); 15-5, 15-2

Q.F. : beat Sailesh Chautha (Karnataka); 15-5, 15-4

S.F. : beat Alok Singh (Maharashtra); 15-0, 15-9

Final : beat Tushar Pai (Maharashtra); 15-3, 15-8 & won the Championship.

The university was a demonstration of the territory's commitment to tertiary education, said the governor of Hong Kong, Sir David Wilson. The colony took great pride in the institution, whose high-tech campus was designed and constructed only five years after the planning committee for the university was set up in 1986.

Vice chancellor of the new university, Prof Woo Chia-Wei, formerly president of San Francisco State University, said it had made a reality of his dream of an institute "that would dedicate its teaching and research to the territory's economic development and continued prosperity".

Professor Woo has his sights set on a wider field than Hong Kong, however: he intends making the university one of the world's leading research institutions in science and technology.

As well as attracting academics from top universities, particularly in the United States, he has struck an agreement with the University of California in Los Angeles to establish a joint school of business management and has also recruited 13 eminent academics, including Nobel Laureate in chemistry, Walter Massey, of UCLA, and Lord Flowers, formerly of the University of London, to form an advisory board on research and development.

Australian Universities Get Closer to Colleges

Australian Universities Vice-Chancellors have proposed for the first time to establish close links with the nation's technical and further education (TAFE) sector.

The Australian Vice-Chancellors' Committee (AVCC) has

News from Abroad

High-Tech Campus for Hong Kong

With the opening of its third university, Hong Kong established itself as a leading centre for scientific and technological research and development.

The Hong Kong University Prof of Science and Technology – the

biggest education development of its kind in the world was recently opened with 560 undergraduates. In five years it will have grown to 7,000 students, 30 percent at postgraduate level, and 700 academic staff.

suggested the creation of a new two-year programme, designed by universities and TAFE colleges and offered in either higher education or TAFE institutions.

The first year would consist of foundation studies in language and literacy, mathematical skills and other humanities, natural and social science studies.

After completing one or two years, students could opt to take either a higher education oriented year, which could count as a credit towards a degree, or a para-professional course which would lead to a TAFE certificate or diploma.

Technical and further education is the largest of the two post-secondary education sectors. Nearly one million Australians are now taking TAFE courses either full or part-time.

Until now, however, students completing TAFE programmes have not received credit for their studies when enrolling at university. A recent federal inquiry – the Finn review of post-compulsory education – called for a new system of credit between the sectors and greater liaison between schools, TAFE and higher education.

The chairman of the AVCC, Ken McKinnon, said vice-chancellors recognised the need for more general vocational education and the need for better and clearer articulation paths.

Indian Academics in America

A Society of Indian Academics in America (SIAA) has been set up for promoting the cause of Indo-American/Canadian understanding and cooperation among the intellectuals of these countries. The objectives of the SIAA are :

- Providing a regular platform, in the form of periodical meetings, for the sharing of mutual hopes and aspirations
- Assisting with the problems and concerns of Indian academics
- Serving India through a systematic transfer of knowledge, science and technology
- Offering financial and other assistance to deserving students
- Establishing chairs in Indian life, history, culture, and civilization
- Promoting the understanding of Indian philosophical and cultural values and traditions
- Increasing exchanges and interaction between American or Canadian scholars and their Indian counterparts
- Publishing a Directory of SIAA members.
- Organizing correspondence courses in various languages of India
- Organizing lectures and seminars on topics concerning India
- Collaborating with other Asian academic groups to further our common interests
- Establishing an Institute of Indian Studies
- Working toward the institution of courses in Sanskrit and other Indian languages in the Universities of North America
- Publishing a Newsletter, which will also serve as a forum for the articulation of members' views.

In addition, the Society also plans to offer short courses on a wide range of topics relating to Indian themes, Indian languages, and other matters of special interest.

Prof. Rishi S. Raj of the City University of New York is the current President of the Society which has its office at 86 Wortendyke Avenue, Emerson, N.J. 07630

The SIAA has embarked upon the following activities :

- Offering scholarships to deserving students

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USEFUL GUIDE

M. P. Satija *

Kakani, S.L. and Parakh, N.C. : Guide to Career for Science Students. New Delhi, Sultan Chand & Sons, 1988. iv, 145p. Rs. 15/-

Career is a phenomenon of the complex modern society. A carefully chosen career not only ensures a decent living and respect in the society and professional circles but also gives a sense of fulfilment and personal achievement. A person launched on a right career is an asset to the society and contributes towards the development of the adopted profession, and finds the life soul satisfying. A misfit is a waste. Thus choice of a right profession is pretty self evident.

In the agriculture society the profession one adopted was more or less hereditary passing from the father to the son—usually the sons either worked on the family land or became apprentice to the father as somewhat predetermined or even predestined. In the industrial society many more new professions emerged for its economic growth. Not only new unheard of professions sprang up, the old ones were fragmented to form specializations. The trend has continued vigorously into the information society. The vertical splits are sometimes minute to the extent that, for instance, there are no physicians but child specialists, heart specialists, gynaecologists and so on. General medicine is becoming a speciality in

itself.

Such a state of affairs presents the career aspirants with a wide spectrum of professions to choose from. In such a vertiginous variety there are two obvious problems: (a) to know what careers are available to a student having certain qualification; and (b) of the careers available what will suit one's natural aptitude and predispositions. The latter issue is quite a precarious one and will make or mar one's life and its happiness. This problem is solved mostly by the recognition of one's own talents and temperament. Teachers, parents, psychologists and career consultants can help the students in the choice of an apt career. The main decision has to be and should be allowed to be of the incumbents themselves.

The present Guide tends to solve the first problem i.e. the identification of courses for choices. It comprises ten chapters followed by six appendices. The book has a bit wider scope than indicated by the title. It not only lists the various careers for students but also the courses of further studies for the science and other students. Some of the careers listed are equally open to and suitable for arts and commerce graduates. The first chapter "introduction" sets the tone by describing the major employers (ministries) in the Central Govern-

ment. In a developing country like India, having a mixed economy, the government is the largest single employer. The chapter provides details of various pay scales from Rs. 1200 onwards. The second chapter enumerates alphabetically the various courses of further studies available after 10+2 examination. These courses are both conventional such as architecture, engineering and medicine, and the non-conventional ones such as Biotechnology. Under each course the institutions offering that course are usually listed Statewise stating the number of seats available and the entrance eligibility conditions and the procedure. The third chapter on the same pattern lists courses such as M.Sc. and Ph.D and the institutions offering them. This chapter also lists courses such as journalism, law, management and education. One obvious omission is courses in library and information science. In the fourth chapter the focus shifts to non-university courses such as chartered accountancy, films and so on. Some institutions such as Indian Statistical Institute (P.78, Sec. 4.7) which are deemed to be universities, should have been listed under the university courses. The fifth chapter catalogues jobs where direct recruitment is done. These includes professions such as advertising, banking, UPSC examinations, railways, insurance, defence services, and many more. Obviously many of them are equally open to non-science graduates. The sixth chapter tenders advice on self employment opportunities enumerating areas of such enterprises. The self-employment in careers such as independent consultants, brokers, commission agents have not been enumerated. Nevertheless in selfemployment lies the solution

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to the complex and mounting problem of unemployment and under-employment.

The seventh chapter is devoted to careers in defence services, while the eighth chapter on information technology careers is scanty and inadequate. This career is all set to proliferate. Ninth is a useful chapter giving details of further studies abroad and the agencies offering scholarships and study grants for this purpose. The last chapter gives

an overview of the prospects of different careers. At the end there are six appendices: the first five list various institutions and corporate employers. Some errors and inconsistencies cannot be ruled out: Aligarh Muslim University has been entered as 'Aligarh University, and Dr. Hari Singh Gour Vishwavidyalaya, Sagar has been entered twice, second time as Sagar University. This however does not include deemed to be universities: more annoyingly it contains no index

— very essential for such a reference book.

Overall it is a very useful and laboriously compiled guide and with its throwaway price of Rs. 15/- it should be in the hands of every aspirant student and the career planners. The authors and publishers have done a commendable service to the students and to the country at large. Hope the book is updated regularly and reaches more and more hands.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
August 26-28, 1992	Second International ISKO Conference on Cognitive Paradigms in Knowledge Organisation	To provide a forum for scholars working in the field of knowledge organisation	Madras Library Association in collaboration with Sarada Ranganathan Endowment for Library Science and University of Madras	Mr. S. N. Kumar, Conference Secretariat, 5, Sivaganga Road, Madras-600 034
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair - 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

Setting the Record Straight

We write with reference to the article 'Booking the Book Importers' by Dr. Thomas Samuel which appeared in the *University News* dated 7 October 1991. We are sorry to say that the article is long on fiction and short on facts. We do not know from where Dr. Samuel got his information but to set the record straight it is essential that the correct facts are brought out.

A wrong impression is being created that the Good Offices Committee has provided a new 'mark up' of 9% for book supplies and 5% for journal subscriptions. The trade had been given the benefit of a 5% 'mark up' based on previous 60 days highest and minimum bank conversion rates (which works out to an effective $2\frac{1}{2}\%$ mark up only) since the 1960s at the time of first devaluation. The Good Offices Committee also owes its origin to the first devaluation in the 1960s to stabilise the conversion rates for supply of books and journals.

The Good Offices Committee comprises fifteen members from the Library profession including representatives of the Ministries of Finance, Human Resource Development and the University Grants Commission and only three trade associations. The question of 'mark up' was discussed between the trade associations and the Librarians for over six months i.e. ever since the margin money deposit was introduced. The Good Offices Committee even set-up a sub-committee comprising 3 Librarians of major institutions and 3 members from the trade which deliberated at length over the issue. At subsequent meetings various proposals were further discussed where the number of Librarians present was larger than the trade representatives and as per the survey con-

ducted by a major Library covering 28 other Libraries in Delhi, it was accepted that there is a definite ground for providing a 'mark up' to the book industry on imported titles. It was clearly accepted that the cost of import has gone up in view of the hike in airfreight charges, the cost of borrowing money for 200% margin deposit, the surcharge on interest on bank advances, the increase in postal rates in delivering books to the institutes (free of charge) and the cost of promotion etc.

Additionally, the Libraries, generally, take anywhere between 6 months to a few years to pay their bills. During this period the conversion rates change constantly and the trade suffers further. From July 1990 to September 1991 there has been a 67% increase in conversion rates which would mean that over a six months period the trade lost almost $33\frac{1}{2}\%$. The Libraries do not compensate the trade for these losses.

At its meeting on 13 September 1991 the Good Offices Committee agreed to allow on the basis of the above increase in costs only an additional 4% 'mark up' on book supplies and no additional 'mark up' on journal subscriptions. Taken together, the earlier 5% mark up and the present 4% mark up, the actual effective mark up is only $4\frac{1}{2}\%$ based on the average 60 days highest and lowest actual bank conversion rates.

Again we do not know how Dr. Samuel suggests that the trade imports books at 50% to 90% discount. The wholesale importer gets discounts varying between 25% and 45% from which he pays airfreight charges of approximately 8% and allows discount to the retail trade of approximately 25%. The Library

supplier in turn allows a discount of a minimum of 10% to all institutional Libraries. From this it is obvious that the trade operates on an average gross margin of 10%-13% from which it not only covers its operating costs but also losses on account of unsold and damaged books and revision in conversion rates.

Nothing can be farther from truth than the suggestion that the Libraries are purchasing 'remaindered' books recommended by the academics. A look at the major Libraries in Delhi, e.g. Delhi University, Indian Institute of Technology, the National Medical Library and many others would reveal the fact that only useful books are both recommended and purchased.

The rise in the cost of publishing books and journals and restricted budgets with the Libraries is an international phenomenon and does not apply exclusively to India. Since the Library budgets are limited it is only the overseas publishers who suffer as their 'unit' sales decline. The turnover of the Indian trade is constant in relation to the total budgets available. The trade does not reap windfall profits as suggested.

The Federation of Publishers' & Booksellers' Associations in India would be happy to provide details whenever required by any organisation to support the fair 'mark up' agreed to at the Good Offices Committee meetings after deliberations lasting over six months.

N K Mehra

President,

The Federation of Publishers' and Booksellers' Associations in India

(FPBA),

4833/24, First Floor

Govind Lane, Ansari Road,

New Delhi 110002

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in the bibliography. Such universities as are not sending us regular information in respect of doctoral theses accepted and research scholars enrolled are welcome to make use of these columns.

The library also receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly the column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during November 1991

EDUCATIONAL PHILOSOPHY

Everhart, Robert B. Semiotics as an orientation to administrative practice. *Ednl Admn Q* 27(3), 1991, 358-77.

Heredia, Rudolf C. Towards an ecological consciousness: Religious, ethical and spiritual perspectives. *New Frontiers In Edn* 21(3), 1991, 292-327.

EDUCATIONAL PSYCHOLOGY

Candy, P C and Crebert R G. Ivory tower to concrete jungle: The difficult transition from the academy to the workplace as learning environments. *J Hr Edn* 62(5), 1991, 570-92.

Panda, Bhujendra Nath. Self concept and academic achievement of tribal adults: A study. *New Frontiers In Edn* 21(3), 1991, 404-7.

EDUCATIONAL SOCIOLOGY

Ajeh, Alice O. Home: Effects on academic achievement. *New Frontiers In Edn* 21(3), 1991, 380-8.

Cottle, Thomas J. Family prepares for college. *J Hr Edn* 62(1), 1991, 79-86.

Gupta, S K. Impact of education on Naga society. *Yojana* 35(17), 1991, 27-30.

Moffatt, Michael. College life: Under-graduate culture and higher education. *J Hr Edn* 62(1), 1991, 44-61.

Scheurich, James Joseph and Imber, Michael. Educational reforms can reproduce societal inequities: A case study. *Ednl Admn Q* 27(3), 1991, 297-320.

WOMEN'S STUDIES

Glazer, Judith S. Feminism and professionalism in teaching and educational administration. *Ednl Admn Q* 27(3), 1991, 321-42.

Heinrich, Kathleen T. Loving partnerships: Dealing with sexual attraction and power in doctoral advisement relationships. *J Hr Edn* 62(5), 1991, 514-38.

Richardson, John T E. Menstrual cycle and student learning. *J Hr Edn* 62(3), 1991, 317-40.

EDUCATIONAL ADMINISTRATION

Aper, Jeffery P and Hinkle, Dennis E. State policies for assessing student outcomes: A case study with implications for state and institutional authorities. *J Hr Edn* 62(5), 1991, 539-55.

Griffiths, Daniel E and others. Still another approach to administration: Chaos theory. *Ednl Admn Q* 27(3), 1991, 430-51.

Heald, James E. Social judgment theory: Applications to educa-

tional decision making. *Ednl Admn Q* 27(3), 1991, 343-57.

Johnsrud, Linda K. Administrative promotion: The power of gender. *J Hr Edn* 62(2), 1991, 119-49.

Neumann, Anna. Thinking team: Toward a cognitive model of administrative teamwork in higher education. *J Hr Edn* 62(5), 1991, 485-513.

TEACHERS & TEACHING

Boice, Robert. New faculty as teachers. *J Hr Edn* 62(2), 1991, 150-73.

Passi, B K and Pal, Rajendra. Academic staff colleges: The relevance of their curricula. *New Frontiers in Edn* 21(3), 1991, 399-403.

Sands, Roberta G and others. Faculty mentoring faculty in a public university. *J Hr Edn* 62(2), 1991, 174-93.

EDUCATIONAL RESEARCH

Braxton, John M. Influence of graduate department quality on the sanctioning of scientific misconduct. *J Hr Edn* 62(1), 1991, 87-108.

EDUCATIONAL TECHNOLOGY

Fratkin, Susan. Future of information technology in higher education: The federal perspective. *Change* 23(1), 1991, 46-51.

Hawkins, Brian L. Preparing for the next wave of computing on campus. *Change* 23(1), 1991, 24-31.

Jonsen, Richard W and Johnstone, Sally M. Future of information technology in higher education: The state perspective. *Change* 23(1), 1991, 42-6.

Kerr, Stephen T. Educational reform and technological change: Computing literacy in the Soviet Union. *Comparative Edn Rev* 35(2), 1991, 222-54.

Kozma, Robert B and Johnston, Jerome. Technological revolution comes to the classroom. *Change* 23(1), 1991, 10-23.

EDUCATIONAL EVALUATION

Soundararaj, Francis. Testing and evaluation. *New Frontiers in Edn* 21(3), 1991, 365-79.

ECONOMICS OF EDUCATION

Ferris, James M. Contracting and higher education. *J Hr Edn*

62(1), 1991, 1-24.

John, Edward P. Framework for reexamining state resource-management strategies in higher education. *J Hr Edn* 62(3), 1991, 263-87.

Levin, Henry M. Raising productivity in higher education. *J Hr Edn* 62(3), 1991, 241-62.

Mumper, Michael and Ark, Pamela Vander. Evaluating the Stafford Student Loan Program: Current problems and prospects for reform. *J Hr Edn* 62(1), 1991, 62-78.

VOCATIONAL EDUCATION

Dyer, Gordon C. Design and implementation of an M.B.A program in the United Kingdom. *American J Distance Edn* 5(2), 1991, 16-23.

Okeke, B S. Vocational education and national integration: A focus on agriculture. *New Frontiers in Edn* 21(3), 1991, 389-98.

LIBRARIES

Lyman, Peter. Library of the (not-so-distant) future. *Change* 23(1), 1991, 34-41.

DISTANCE EDUCATION

Gao, Fuwen. Challenge of distance education in China. *American J Distance Edn* 5(2), 1991, 54-8.

Garrido, Jose Luis Garcia. Overview of Spanish and Latin American distance higher education. *American J Distance Edn* 5(2), 1991, 64-8.

McIlhenny, Alan J. Kathmandu International Study Centre: A model for supporting self-study. *British J Ednl Tech* 22(3), 1991, 187-95.

Ross, David. Project management in the development of instructional material for distance education: An Australian overview. *American J Distance Edn* 5(2), 1991, 24-30.

Tait, Alan. Distance education in the United Kingdom today: Current trends. *American J Distance Edn* 5(2), 1991, 42-6.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Reimers, Fernando. Impact of economic stabilization and adjustment on education in Latin America. *Comparative Edn Rev* 35(2), 1991, 319-53.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

BIOLOGICAL SCIENCES

Environmental Sciences

1. Chakrapani, Govind Joseph. Environmental geochemistry of the Mahanadi River Basin. JNU. Prof V Subramanian, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi.

2. Leelapriya, Thasari. Studies on the effect of certain toxicants present in tannery effluents on plant growth. Madras.

3. Vijai Kumar. Status and behaviour of SPM as a particulate nitrate size distribution and correlation with NOx in the atmosphere of Delhi between source: receptor. JNU. Prof J M Dave.

Biology

1. Murugadass, S. Studies on prawn cultivation, *Macrobrachium nobilii* Henderson & Mathal. Madurai.

2. Santhagopalan, V. Studies on metallathioneins. Madurai.

Biophysics

1. Lakshminarasimhulu, P. Molecular modelling studies on the specificity and mechanism of action of T4 lysozyme. IISc.

2. Mande, Shekhar C. Structural studies on peanut lectin. IISc.

3. Sheikh Abdus Samad. Biophysical properties of the temperate *Vibriophaga kalpa*. Calcutta.

Biochemistry

1. Gomathy, R. Studies on the hypoglycemic and hypolipidemic principle of the inflorescence stalk (pith of the stem) of *Musa sapientum*. Kerala. Dr P A Kurup, Gouri Sadan, T C4/1413, Kowdiar, Thiruvananthapuram and Dr N R Vijayalakshmi, Lecturer, Department of Biochemistry, University of Kerala, Kariavattom.

2. Mohamed Rafi. M. Studies on the mitochondrial systems of filarial parasites. Kerala. Dr R Kaleysa Raj. Prof and Head, Department of Biochemistry, University of Kerala, Thiruvananthapuram.

3. Narasimha Swamy. M S. Studies on the mechanism of hydrolysis of cellulose and active site analysis of beta-1, 4-glucan glucanohydrolase from *Thermoascus aurantiacus*. IISc.

4. Roche, Maya. Studies on alpha-2 macroglobulin in animal blood plasma. Mangalore. Dr T N Pattabhiraman, Prof and Director, Department of Biochemistry, Kasturba Medical College, Manipal.

Biotechnology

1. Adhikary, Rajendra Kumar. Studies on the production of *Agaricus bisporus* (Lange) Sing. and *Pleurotus sajor-caju* (FR) Sing. on substrates of specific plant wastes. Gauhati. Dr D N Bordoloi, Deputy Director and Head, Division of Medicinal and Economic Plants, Regional Research Laboratory, Jorhat.

2. Garg, Kush. Bio-conversion of molasses to citric acid. Roorkee.

Microbiology

1. Rathod, Vandana. Studies on bacteria pathogenic to lepidopteran storage pests. Gulbarga. Dr Y F Neelgund, Prof and Chairman, Department of Microbiology, Gulbarga University, Gulbarga.

Botany

1. Acharyulu, M V R N. Study of eutrophication levels of impoundments of Karnataka State as determined by nutritional status and algal bioassay procedures. Karnatak. Dr S G Bharati, Prof (Retd), Department of Botany, Karnatak University, Dharwad.

2. Anantrai, Oza Renu. Taxonomical and ecological studies of the flora of and around Bhavnagar. Bhavnagar. Dr D C Bhatt, Sir P P Institute of Science, Bhavnagar.

3. Banik, Swapna. A comparative and volumetric airborne pollen survey in urban and rural areas of Greater Calcutta with reference to respiratory allergy. Calcutta.

4. Behera, Lalit Mohan. Inter organ relationship during leaf senescence. Sambalpur. Dr N K Choudhury, Reader, Department of Life Sciences, Sambalpur University, Burla.

5. Chavan, Ashroba Apparao. Line X tester analysis of yield, yield components and disease resistance in pearl millet, *Pennisetum americanum* (L) Leeke. Marathwada Krishi. Dr Y S Nerkar, Ex Assoc Dean and Principal, College of Agriculture, Marathwada Agricultural University, Parbhani.

6. Datta, Ratna. Revision of Indian Hedyothia (Rubiaceae). Calcutta.

7. Dube, Pramod Kumar. Ecology of some important tropical forest tree seeds. HS Gour. Dr P K Khare, Department of Botany, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

8. Ganapati, T R. Morphogenetic studies in vitro on sunflower, Niger and coffee. Karnatak. Dr K Nataraja, Prof and Chairman, Department of Botany, Karnatak University, Dharwad.

9. Modgil, Dalip Kumar. Embryological studies in some taxa of Himalayan Orchidaceae with comments on the systematic positions of *Apostasia*, *Cypripedium* and *Vanda*. HP.

10. Raghavendra Rao, Kopparthi Venkata. Ecological studies on Gir forest with emphasis on litter production and decomposition. Bhavnagar. Dr B R Pandit, Reader, Department of Life Sciences, Bhavnagar University, Bhavnagar.

11. Ragupathy, S. Studies on the flora of Thanjavur District and their endomycorrhizal profile. Madras.

12. Rout, Gyana Ranjan. Studies on in vitro mass propagation of rose cultivars. Utkal.

13. Sai, V S. Ecological diversity and its measurements in some forests of Central India. D.Sc. Awadhesh.

14. Satyasubramanyam, Seethamraju Venkata. Production, decomposition, mineral status and calorific value of litter in tropical dry deciduous forest ecosystem. Bhavnagar. Dr B R Pandit, Reader, Department of Life Sciences, Bhavnagar University, Bhavnagar.

15. Siddiqui, Badruzzaman. Flora of Hardol. AMU. Prof Wazahat Husain, Department of Botany, Aligarh Muslim University, Aligarh.

16. Yumnam Suntibala Devi. Studies on in vitro culture of apical bud (shoot tip) of *Tectona grandis* Linn. Calcutta.

Agriculture

1. Bhoi, Pandit Gatalu. Effect of irrigation regimes, nitrogen levels and harvest stages on growth, yield and forage quality of maize composite, 'African tall', *Zea mays* L. M P Krishi. Dr

S N Desai, Director, Department of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri.

2. Gangopadhyay, Samar Kumar. Characteristics of soils of Eastern Himalayas under different forest vegetations. Calcutta.

3. Lambhate, Shankar Savalaram. Studies on stalk rot of maize, *Zea mays* L. M P Krishi. Dr W D More, Prof, Department of Plant Pathology, College of Agriculture, Pune.

4. Mukhtiar Singh. Effect of traffic soil density on soil-water relations and water uptake by wheat under different soil moisture regimes. PAU.

5. Nag, Pranab Kumar. Ergonomics: A new perspective of work organisation in traditional agriculture. D.Sc. Calcutta.

6. Parminder Kaur. Microbial and metabolic changes in maize grains during storage. PAU.

7. Patel, Dhansukhbhai Uttambhai. Heterosis, combining ability and stability analysis for brix, stalk, juice and grain yield in sorghum. Marathwada Krishi. Dr R A Patil, Officer Incharge, Agricultural Research Station, Badnapur.

8. Pritpal Kaur. Studies on associations of Rhizosphere fungi and root knot nematode on mungbean and mash. PAU.

9. Rana, Nand Kishore. Characterization of rice soils of red-yellow-gray catenary soil association of Chotanagpur with special emphasis on the translocation of aluminium, iron and manganese. Birsa Agri.

10. Swaran Lata. Studies on the hybridization between some synthetic amphiploids and bread wheat, *Triticum aestivum* L. em. Thell. HP. Dr G S Sethi, Department of Plant Breeding and Genetics, College of Agriculture, Palampur.

Zoology

1. Agrawal, Naresh Chandra. Comparative hydrobiological study of the military engineering lake and the Sugar Lake with special reference to nutrient enrichment and productivity. HS Gour. Dr V S Bais, Department of Zoology, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

2. Datta, Tapasi. Effect of some commonly used pesticides on some metabolically active tissue and related enzymes of *Tilapia mossambica* Peters. Calcutta.

3. Deb, Sutapa. Anatomy of the olfactory apparatus of some teleostean fishes of India. Calcutta.

4. Jacob, Valsa. Hormonal regulations of intermediary metabolism in the Indian garden lizard, *Calotes versicolor*. Kerala. Dr

Oommen V Oommen, Reader, Department of Zoology, University of Kerala, Kariavattom.

5. Mishra, Premananda. Age-related metabolic studies in the cerebral hemispheres of male garden lizard. Berhampur. Dr B K Patnaik, Prof, Department of Zoology, Banaras Hindu University, Varanasi.

6. Patil, Uma Rudragouda. Studies on growth index and reproductive potential of the armyworm, *Mythimna (Pseudaletia) separata* (walder) with reference to its management. Karnatak. Dr C J Savanurmah, Reader, Department of Zoology, Karnatak University, Dharwad.

7. Prakash, Alka. Genetic studies of two species of Indian cat-fishes. NEHU. Prof K Chatterjee, Department of Zoology, North Eastern Hill University, Shillong.

8. Sankaralingam, A. Dynamics of predation and reproduction in aquatic insect, *Diplonychus Indicus* Venk & Rao (Hemiptera: Belostomatidae). Madras.

9. Tiwari, Ram Manohar. Endocrine control of reproductive cycle in teleost fish in relation to external environment. HS Gour. Dr A K Raizada, Department of Zoology, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

Medical Sciences

1. Ambalagan, J. Comparative study of kidney in some vertebrates by microdissection, histology, histochemistry and stereology. Nagpur. Dr (Mrs) S S Navagiri, Indira Gandhi Medical College, Nagpur and Dr G M Indurkar, P D M Medical College, Amravati.

2. Chaudhuri, Arbindanarayan. Psychosomatic aspects of

menstrual distress. Calcutta.

3. Datta, Gauriprasad. Somato-vascular reflexes: Role of sympathetic. Calcutta.

4. De, Susanta Kumar. Studies on L-asparaginase in *Vibrio* species. Calcutta.

5. Geetha, H. Osometry and sweat analysis in clinical practice. Bangalore. Dr C M Jayakeerthy, Prof, Department of Pathology, Bangalore Medical College, Bangalore and Dr L Govardhan, Department of Chemistry, Central College, Bangalore.

6. Hejamadi, Srinivas. Studies on the ayurvedic management of ageing (Jara). Gujarat Ayur. Prof Gurdip Singh.

7. Muthukumar, S. Studies on the immune response to porin in murine experimental salmonellosis. Madurai.

8. Pathak, Basabi. Cardiovascular reflexes of cardiac origin. Calcutta.

9. Singh, Indira Guleria. Studies on the protective potential of a cross-reactive anti-leprosy vaccine based on *Mycobacterium W* against tuberculosis. JNU. Dr (Mrs) Rama Mukherjee.

10. Syed Perwez Hussain. Modulatory influence of oral and injectable contraceptive on cervical carcinogenesis in mice. JNU. Prof A Ramesha Rao, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

11. Yadava, Anjali. T cell responses to fractionated antigens of *mycobacterium W* in leprosy patients. JNU. Dr Rama Mukherjee and Prof G P Talwar.

12. Zala, K K. Preparation of *parada bhasma*. Gujarat Ayur. Prof M S Shastri.



Agricultural Economics Research Centre UNIVERSITY OF DELHI

Applications are invited for the post of one Senior Fellow, who may also be required to perform the duties of Director of the Centre, in the pay scale of Rs.4500-150-5700-200-7300p.m. plus usual allowances as admissible in the Delhi University

Qualifications: An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level. OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Desirable: At least 10 years' experience in organising and guiding research work in agricultural economics and rural surveys in research organisation of higher learning.

Applications giving full particulars should reach the Chairman, Governing Body, C/O Agricultural Economics Research Centre, University of Delhi, Delhi-0110 007, not later than **December 20, 1991** by registered post.

Note:

1. It will be open to the Selection Committee to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases on the recommendations of the Selection Committee.
2. Canvassing in any form by or on behalf of the candidate will disqualify him/her.
3. Candidates from outside Delhi when called for interview will be paid to and from single second class rail fare from the shortest route.
4. The Institute reserves the right not to fill up the vacancy advertised if the circumstances so warrant.

Prof. A. L. Nagar
CHAIRMAN

CLASSIFIED ADVERTISEMENTS

INSTITUTE OF MICROBIAL TECHNOLOGY

(Council of Scientific & Industrial Research)
Advertisement No. 2/91

The Institute of Microbial Technology, Chandigarh, is a growing institution with excellent facilities for basic and applied research with a multidisciplinary approach in frontier areas of biotechnology. The Institute also operates three national facilities, viz. Biochemical Engineering Research & Process Development Centre, Microbial Type Culture Collection and Bioinformatics Centre, with support from the Department of Biotechnology, Government of India.

For ongoing as well as planned activities of the Institute, applications are invited for the following posts:

I. Scientist EI/EII - (3 posts)

(Group IV (3) Pay Scale: Rs 3700-125-4700-150-5000 (T.E. Rs. 5450)

(Group IV (4) Pay Scale: Rs 4500-150-5700 (T.E. Rs. 6350)

Age: Preferably below 40 years, relaxable in deserving cases

These are senior level positions in which the incumbents will be expected to lead research and development teams in specific areas. Candidates with proven record of performance and leadership ability will be considered. Depending on the candidate's merit, either EI or EII position may be offered.

Post No. 1: Biochemical Engineering

Essential Qualifications: First class B.E./B.Tech. in biochemical/chemical engineering or First class M.Sc. in Microbiology/Biochemistry with 12 years, experience or M.E./M.Tech/Ph.D. in these disciplines with 10 years, experience as evidenced by publications in reputed journals, patents or processes in use.

Desirable: Experience of large scale process operations in biochemical engineering or fermentation-based industry. Good knowledge in one or more of the following areas:

- (i) Microbial physiology/genetics/biochemistry
- (ii) bio-sensors and
- (iii) bioseparation science.

Job requirement: Development of new/improved processes related to fermentation technology and downstream processing. Supervision of operation of state-of-the-art pilot scale fermenter and downstream units with microprocessor

control. Planning and participation in advanced teaching/training courses organised by the institute.

Post No. 2: Molecular Biology

Essential Qualifications: First class M.Sc. in physicochemical/biological sciences with 12 years experience or Ph.D with 10 years experience in the area of molecular studies of gene expression in prokaryotic or eukaryotic organisms as evidenced by publications in reputed journals or patents.

Desirable : Experience in genetics and molecular biology of yeast, fungi or anaerobic organisms. Proven ability of independent research.

Job requirement : Development of systems for expression of cloned genes commercial importance. Planning and participation in advanced teaching/training programmes of the institute.

Post No. 3: Bioinformatics

Essential Qualifications: First class B.E./B.Tech./M.Sc. (in computer science/library science/physicochemical or biological sciences/engineering) with 12 years, experience or M.E./M.Tech/Doctorate with 10 years experience.

Desirable: Experience in design/development of database systems, computer systems and networking, knowledge of use of computer techniques in modern biology and biotechnology.

Job Description: Development of databases in the areas of enzyme engineering, immobilised biocatalysts, microbial fermentation and bioprocess engineering; supervision of services for providing information in these and related areas; participation in and management of training courses for users of the facility.

II. Scientist C (Group IV 2) - (5 Posts)

Pay Scale: Rs. 3000-100-3500-125-4500 (T.E.Rs. 5420)

Age: Preferably below 35 years, relaxable in deserving cases.

In these positions incumbents are expected to assist in the planning and execution of research/infrastructural projects either under the overall supervision of a senior investigator or independently and to carry out related activities that may be assigned to the scientist from time to time.

Post No. 4: Biochemical Engineering

Essential Qualifications: First class B.E./B.Tech. in biochemical/chemical engineering or first class M.Sc. in

Microbiology/Biochemistry with 6 years' experience or M.E./M.Tech. with 4 years or Doctorate in Microbiology/Biochemistry with 2 years' experience or Ph.D. in biochemical/chemical engineering as evidenced by publications in reputed journals, patents or processes in use.

Desirable: Experience in process development related to fermentation for production of antibiotics, industrial biochemicals etc. Working knowledge in one or more of the following: microbial genetics/biochemistry, animal cell culture, molecular biology, bioseparation science and mathematical modelling.

Job requirement: Scale up operations from shake-flask to the pilot plant level, strain improvement programme for antibiotics etc. Planning and participation in advanced teaching/training courses organised by the institute.

Post No. 5: Molecular Biology

Essential Qualifications: First class M.Sc. in physicochemical/biological sciences with 6 years' experience or Ph.D. with 2 years' experience in molecular biology as evidenced by publications in reputed journals or patents.

Desirable: Experience in genetics or molecular biology of bacteria, yeast, fungi, anaerobic organisms or plant viruses.

Job requirement: Development of systems for expression of cloned genes of commercial importance. Development of the molecular biology of plant viruses. Planning and participation in advanced teaching/training programmes of the institute.

Post No.6: Veterinary Science

Essential Qualifications: First class M.Sc. in Veterinary Science or first class M.V.Sc., with 6 years' experience or Ph.D. with 2 years' experience in care, handling and breeding of laboratory animals.

Desirable: Knowledge/experience in animal genetics, testing and maintenance of inbred strains.

Job Description: This is primarily a service position in which the incumbent will be responsible for maintenance of a modern animal house facility for biomedical research. The duties include procurement, breeding and supply of laboratory animals required for research in the institute.

Post No. 7: Electron Microscopy

Essential Qualifications: First class M.Sc. in

biological/biophysical/physical sciences with 6 years' experience or Ph.D. with 2 years' experience, primarily involving use of both SEM and TEM for ultrastructural studies of biological materials.

Desirable: Experience of newer ultrastructural methods like immunoelectron microscopy, freeze-substitution, freeze-fracture, freeze-etching etc. Publication on use and development of ultrastructural methods.

Job Description: The incumbent will be responsible for operation of a state-of-the-art electron microscope facility 9(SEM and TEM) and will be required to interact with other scientists of the institute to provide assistance/collaboration in ultrastructural studies of biological materials.

Post No. 8 : Mycology

Essential Qualifications: First class M.Sc. in biological sciences with 6 years' experience or Ph.D. with 2 years' experience primarily involving taxonomy of fungi.

Desirable: Experience of different method of maintenance and preservation of fungi, knowledge/experience of newer approaches to taxonomic studies.

Job Description: The incumbent will be responsible for fungi section of the Microbial Type Culture Collection and Gene Bank (MTCC). In addition to providing services to the scientific community, he/she should initiate research programme(s) relevant to MTCC's activities. Interaction/collaboration with other scientists of the institute is encouraged.

Post No. 9: Bioinformatics

Essential Qualifications: First class B.E./B.Tech/M.Sc. in computer science/library science/physicochemical or biological sciences/engineering with 6 years' experience or M.E./M.Tech. with 4 years' experience or Ph.D. in the sciences with 2 years' experience or Ph.D. in engineering.

Desirable: Experience in design/development of database systems, computer systems and networking, knowledge of use of computer techniques in modern biology and biotechnology.

Job Description: Participate in development of databases in the areas of Enzyme Engineering, Immobilised Biocatalysts, Microbial Fermentation and Bioprocess Engineering, coordinate services for providing information in these and related areas, arrange and conduct training courses for users of the facility and help in day-to-day work in the Centre.

III. Scientist B (Group IV (1) – (5 Posts - 2 posts reserved for Scheduled Castes & 2

posts for Scheduled Tribes)

Pay Scale: Rs. 2200-75-2800-EB-100-4000 (T.E.Rs.3990)

Age: Below 30 years as on 1.1.92 (relaxable in case of SC/ST candidates by 5 years).

In these positions the incumbents will work under the supervision of senior scientists in ongoing research projects of the institute and carry out related activities assigned to them from time-to-time.

Post Nos. 10 to 14: Biochemistry (2 posts)/ Microbiology (2 posts)/ Biochemical Engineering (1 post). (2 posts reserved for SC and 2 for ST candidate) (1 post in Microbiology is open to all)

a) For Biochemistry/Microbiology

Essential Qualifications: Ist class M.Sc. in Biochemistry/Microbiology/Biotechnology/Biological Sciences or Ph.D.

Desirable

(i) **For the posts in Bio-Chemistry:** Experience/knowledge in one or more areas of : recombinant DNA technology, molecular genetics, enzymology, animal cell culture.

(ii) **For the posts in Microbiology:** Experience/knowledge in modern techniques in detection of microflora in the environment, or plant molecular biology or bacterial taxonomy or microbial genetics.

b) For Biochemical Engineering

Essential Qualifications: First class B.E./B.Tech. in Biochemical/Chemical Engineering or First class M.Sc. in Microbiology.

Desirable: Experience/knowledge in one or more of the following areas: fermentation process development, design of bioreactors computers stimulation studies, genetic engineering, animal cell culture.

Job Description: In this position the incumbent will work under the supervision of senior scientists ongoing project of the institute and carry out related activities assigned to them from time to time.

IV. Technical Assistant: (Group III (1) : 6 posts (1 post reserved for ST & 1 for SC).

Pay Scale: Rs. 1400-40-1800-EB-50-2300 (T.E.Rs. 2510)

Age: Below 28 years as on 1.1.92 (relaxable in case of SC/ST candidates by 5 years).

Post No. 15: (Reserved for ST candidates)

Essential Qualifications: B.Sc. (Medical or Biological)

Desirable: Relevant working experience in a biochemical, chemical or medical laboratory. Experience in handling fermentation and analytical equipment.

Post Nos. 16 & 17 (1 post reserved for SC candidates)

Essential Qualifications: B.Sc. in Physical/Biological/Library Sciences/Electronics or 3 year Diploma in Electronics/Computers/ Instrumentation.

Desirable: Experience of using computers for applications such as word processing, spreadsheets and database systems. Knowledge of a programming language, experience in programming of computers.

Post No. 18: (Electron Microscopy)

Essential Qualifications: B.Sc. in Physical/Biophysical sciences or 3-year Diploma in Instrumentation/ Electronics.

Desirable: Experience in an Electron Microscope laboratory. Knowledge of Sample preparation, Ultramicrotomy and allied techniques.

Post No. 19: (Engineering Services)

Essential Qualifications : Diploma in Mechanical Engineering of 3 years duration.

Desirable: Experience in installation, operation and maintenance of large central air conditioning plants. Experience in operation and maintenance of oil fired boilers and reciprocating compressors and similar equipment.

Post No. 20: (Instrumentation)

Essential Qualifications: 3-year Diploma in Electronics & Telecommunication Engineering or B.Sc. with Physics, Chemistry & Mathematics.

Desirable: Experience in servicing and maintenance of electronics equipment. Persons having experience in Bio-medical & Analytical field will be preferred.

Job Description: Candidates selected will be required to (1) assist scientists in their research activities, (2) operate analytical instruments and (3) any other duties assigned to them from time-to-time.

V. Post No.21 : Technician (Group II(1)) (1 post) (Reserved for SC candidate)

Pay Scale: Rs. 950-20-1150-EB-25-1400 (T.E.Rs.1790)

Age : Below 28 years as on 1.1.1992 (relaxable in case of SC candidate by 5 years)

Essential Qualifications: ITI certificate in Instrument Technology or equivalent.

Job Description: Selected candidates will assist scientists in their research and/or in other duties assigned to them from time to time. The incumbent will be required to work in shift duties as and when required.

**** (T.E. against pay scales denote the**

total emoluments as on 1.11.91)

General Conditions

For all posts of scientists, the candidates are expected to have a consistently good academic record with evidence or potential for research.

The number of vacancies mentioned in each category is provisional and may vary at the time of selection. The scientists posts are contractual.

Pay and allowances are as per Central Govt. rules as applicable to Chandigarh.

Persons working in Govt./Deptt./undertaking/autonomous bodies should send their applications through proper channel.

Candidates not found suitable for the post applied for may be offered a lower position as advertised. They may so indicate in the application if they are agreeable to be considered for a lower post.

Application for the post of Technician Gr.II (1) may be submitted on plain paper indicating (1) Name (2) Father's Name (3) Date of Birth (4) Address for Communication (5) Qualification (6) Experience (7) Whether belongs to SC/ST (8) Whether you have any blood relation in IMTECH, if so, give details, alongwith the passport size recent photograph, duly accompanied by attested copies of certificates, testimonials, etc.

Application forms for the posts Nos. 1 to 20 can be obtained free of cost from the Administrative Officer, Institute of Microbial Technology, Post Box 1304, Sector 39-A, Chandigarh-160014. In case application form is desired by post, the request indicating number of the advertisement, name of the post applied for etc. should be accompanied by a self-addressed envelope of Rs. 2.00. Complete application in the prescribed form together with non-refundable application fee of Rs. 8/- (no fee in case of Scheduled Caste/Scheduled Tribe/Physically Handicapped candidates) by means of crossed Indian Postal Order drawn in favour of Director, Institute of Microbial Technology, Chandigarh, alongwith attested copies of testimonials/certificates should reach the Director, Institute of Microbial Technology, Post Box No. 1304, Sector 39-A, Chandigarh-160014 by 15th December 1991. The post applied for should be clearly written in the application, failing which the application will not be considered. Incomplete applications including those received without attested copies of certificates, testimonials etc. and/or those received after the due date are liable to be rejected.

Housing may be provided as per rules.

Canvassing in any form and/or bringing out any influence, political or otherwise, will be treated as a disqualification for the post.

Merely fulfilling the minimum prescribed qualifications and experience will not vest any

right on a candidate for being called for interview. Since it may not be possible to call all the candidates for interview, the applications will be shortlisted for the purpose and the decision of a duly constituted Screening Committee will be final. The Institute will not entertain any correspondence in this respect.

A lower standard of suitability consistent with efficiency will be applied in respect of SC/ST candidates.

"INTERIM ENQUIRY WILL NOT BE ATTENDED TO"

DELHI INSTITUTE OF TECHNOLOGY OLD I.G. BLOCK: KASHMERE GATE DELHI 110 006 Adv. No. 3/91

Applications are invited for the following posts at this Institute to fill them on regular basis. All the scales carry allowances as per Central Govt. rates. Suitable increments are permissible commensurate with qualifications and experience. Age limit will be reckoned from 18.12.1991. The Institute reserves the right of changing the number of vacancies.

1. Professors : 5

Computer Engg.	2
Head Computer Center	1
Control System and Instrumentation.	2

Scale : Rs. 4500-7300

Qualifications and Experience

Essential

- A Ph.D Degree in the appropriate field.
- 10 years' experience in teaching/research with atleast 5 years' in teaching in an Institution with university level of teaching at graduate/postgraduate levels/R&D Organization in the area of specialization.
- Specialised knowledge in one or more fields.

Desirable

- Evidence of Research and Development activities by way of publications/patents.
- Experience in guiding research with documentary evidence.

Age: Not exceeding 50 years

Note. I

Qualification and experience are relaxable at the discretion of the Selection Committee in case of candidates otherwise well qualified. In case of Engineers with outstanding R&D experience, the

requirements of the Ph.D degree and teaching experience can be waived.

Note.II

Recruitment Rules for Head Computer Center are the same as for Professor Computer Engg.

2. Asstt. Professors : 9

Computer Engg.	3
Instrumentation & Control Engg.	3
Electronics & Communication Engg.	3

Scale : Rs. 3700-5700

Qualifications and Experience

Essential

- Master's Degree in Engg./Tech. from a recognised university or equivalent in the appropriate field.
- 5 years experience in teaching/research in the required field in an institution with university level of Teaching/R&D Organisation.

Desirable

- Doctor degree in the relevant field.
- Evidence of Research and Development activities by way of publication/patents.

Age: Not exceeding 45 years.

Note. I

Qualification and experience are relaxable at the discretion of the Selection Committee in case of candidates otherwise well qualified. In case of Engineers with outstanding R&D experience, the requirements of Ph.D degree and teaching experience can be waived.

3a. Lecturers: (Engineering) : 7

Electronics & Comm. Engg.*	2
Computer Engg.*	2
Mechanical Engg.**	2
Instrumentation & Control Engg.*	1

Scale : Rs. 2200-4000

* One post reserved for Scheduled Caste.

** One post Reserved for Scheduled Tribe.

Qualifications and Experience

Essential

- Master's degree in the appropriate field in Engg./Tech. from a recognized university or equivalent.
- failing (i) above:-

1st Class Bachelor's degree in the appropriate field of Engg./Tech. from a recognised Institute/University.

Such a candidate shall have to acquire M.E./M.Tech. degree within a period of 5 years of his appointment failing which he/she shall not be entitled to any further increment in the prescribed pay scale.

Age: Not exceeding 35 years.

b. Lecturers:- (Non Engineering) : 6

Physics*	2
Chemistry**	2
Mathematics*	2

Scale : Rs. 2200-4000

****** One post reserved for S. Tribe.

***** One post reserved for S. Caste.

Qualifications and Experience

Essential

(i) At least IIInd class Master's degree or an equivalent degree from recognised university or equivalent.

Note

Provided that if a candidate does not possess a Ph.D./M.Phil/M.Litt. at the time of his/her appointment and does not qualify himself/herself for the award of Ph.D/M.Phil/M.Litt. degree from a recognised university in a subject which is being taught by him/her within a period of 5 years from the date of his/her appointment, he/she shall not be entitled to any further increment after the expiry of the said period of 5 years till such time he/she fulfils the above mentioned requirements.

Age: Not exceeding 35 years.

4. System Software Engineer : 1

Scale : Rs. 2200-4000

Qualifications and Experience

Essential

(i) (a) Same as for Lecturers in Computer Engineering.

OR

A first class Master's degree in Computer Application from a recognised University/Institution or equivalent with 2 years' professional experience in developing system softwares.

Desirable

(i) Proficiency in FORTRAN, COBOL, PASCAL, BASIC, C, PROLOG

(ii) Knowledge of operating systems like MS.DOS, UNIX, TME compilers, graphics and CAD Softwares, etc.

Age: Not exceeding 35 years.

5. Software Engineer : 1

Scale: Rs. 2200-4000

Essential

i) (a) Master's degree in Operations Research, Statistics, Science, Arts, Economics or Mathematics from a recognised University/Institution or equivalent with a Diploma/Certificate from a recognised University/Institution in Computer Programming.

OR

i) (b) A Bachelor's degree in Engineering or

Master's degree in Computer Applications from a recognised University/Institution or equivalent.

ii) 3 years' experience of data processing work in a Computer Center in case of i(a) and 1 year experience in computer application in case of candidates having qualifications mentioned in i (b).

Desirable

i) Proficiency in FORTRAN, COBOL, PASCAL, BASIC.

ii) Knowledge of System Software.

Age: Not exceeding 35 years.

Delhi Institute of Technology was started in 1983 under Delhi Administration. Now it has been converted into an Autonomous Institute administratively. It is fully financed by the Government. The management of the Institute has been handed over to the Board of Governors. The Institute has already established an excellent facility in Computer Education, commensurate with the needs. Electronic Media like Video Tape courses of full semester length obtained from leading U.S. Universities from the resource materials for a number of Courses in Electronics and Computer Engg. There is a comprehensive plan for growth of this Institute in terms of physical expansion and attainment of excellence in Teaching/R & D activities. It is to be built on a 145 acres of Land near Palam areas. Therefore, the Institute is looking for really dedicated faculty members who can help to translate the plan into reality by contributing towards making this Institute an excellent one in the areas of its pursuit.

There is ample freedom of growth for the right type of candidates. The Institute plans to undertake Industrial R and D, Consultancy services, Technology Transfer Programmes and Establishment of Science and Technology Entrepreneurship Park as integrated Schemes alongwith teaching which is presently confined to Bachelor's Degree in Electronics and Communication Engg., Computer Engg. and Instrumentation and Control Engg. A comprehensive documentation of the Profile of Growth is in the process of finalization, which includes Postgraduate programmes and establishment of advanced Labs/centre etc. in addition to diversification of undergraduate programmes.

Completed applications forwarded through proper channel, in case of employed candidates, alongwith a crossed Indian Postal Order of Rs.10/- (Rs. Ten only) as the application fee, drawn in favour of Project Officer, Delhi Institute of Technology, K. Gate and payable at GPO, Delhi 110 006 should reach the Institute by 18.12.1991. There is no application fee for SC and ST candidates. Advance copy of the application may be sent, if necessary. The candidates called for Interview will be reimbursed travelling expenses to and fro by the shortest route upto IIInd class

Railway Fare. Residential Accommodation for them would be provided if they join the Institute, on the terms and conditions as normally applicable to Central Govt. employees.

The format of the application form is as given below:

1. NAME :

2. DATE OF BIRTH :

3. FATHER'S /HUSBAND'S NAME:

4. ADDRESS :

5. NAME OF THE POST FOR WHICH APPLYING :

6. EDUCATIONAL QUALIFICATIONS :
WITH THE YEAR OF PASSING AND PERCENTAGE OF MARKS/CLASS (ONWARD FROM 10+2 OR EQUIVALENT).

7. EMPLOYMENT WITH THE NAME OF EMPLOYERS, REMUNERATION AND PERIOD:

8. RESEARCH EXPERIENCE AND LIST OF PUBLICATIONS :

9. ANY OTHER EXPERIENCE WHICH FITS WITH THE REQUIREMENTS OF THE JOB :

10. PROFESSIONAL MEMBERSHIPS AND ANY OTHER DISTINCTIONS :

11. HOW DO YOU THINK YOU ARE A FIT CANDIDATE FOR A CHALLENGING TEACHING AND RESEARCH POSITION AT THIS INSTITUTE?

12. NO. AND NAMES OF THE TESTIMONIALS ATTACHED.

13. NAMES AND ADDRESSES OF TWO REFEREES WHO ARE/(WERE) CONNECTED WITH YOUR TECHNICAL/SCIENTIFIC/ACADEMIC/ PROFESSIONAL WORK.

14. NO., DATE, PLACE OF ISSUE OF THE POSTAL ORDER.

(Please use additional sheets of paper wherever needed and send copies of one or two research publications which you consider to be the most important. Application should be neatly typed).

Date :
Place :

Signature of the Applicant.

BERHAMPUR UNIVERSITY

BHANJA BIHAR, BERHAMPUR 760 007, ORISSA

NO. 12770/Adm-I/BU/91

Date : 15.11.1991

ADVERTISEMENT

Applications are invited for the following posts. The prescribed forms can be obtained from the office of the Berhampur University in person on production of a bank draft drawn on the State Bank of India, Bhanja Bihar Branch worth Rs.50/- (rupees fifty) only in favour of the Registrar, Berhampur University. Those desirous of obtaining them by post may send a bank draft as above along with a self-addressed envelope (22 cm x 10 cm) with postage stamp worth Rs.4/- affixed on it.

Sl.no.	Subject/Department	Name of the post	No. of vacancies	Specialisation required
1.	Business Administration	Professor	Two	Financial Management and Control - One Marketing Management - One
2.	Business Administration	Reader	Two	Marketing Management - One Production Management - One
3.	Business Administration	Case Analyst	One	Marketing
4.	Electronic Science	Reader	Two	-
5.	Electronic Science	Lecturer	Two SC-1 & ST-1 &	-
6.	Computer Science & Application	Professor	One	-
7.	Computer Science & Application	Reader	Two	-
8.	Computer Science & Application	Lecturer	Two ST-1 & UR-1	-
9.	Linguistics	Reader	One (lien vacancy)	Historical Linguistics/Structural Linguistics
10.	Linguistics	Lecturer	One SC/ST &	Sanskrit
11.	Industrial Relation & Personnel Management	Reader	One	-
12.	Marine Science(Oceanography)	Professor*	One	-
13.	Environmental Science	Professor**	One	-
14.	Environmental Science	Reader**	One	-
15.	Material Science	Professor***	One	-
16.	Material Science	Reader***	One	-
17.	Economics	Reader	One	-
18.	Home Science	Lecturer	One SC/ST &	-
19.	Oriya	Lecturer	One SC/ST &	-
20.	Journalism & Mass Communication	Lecturer	One SC/ST &	-
21.	Lingaraj Law College	Lecturer	One SC/ST &	-

* Reserved for ST/SC candidates, but general candidates may apply for consideration, if suitable ST/SC candidates are not available.

All the teaching posts involve conducting/guiding/directing scientific and/or technical research.

II QUALIFICATIONS & EXPERIENCE

1) Professor (Sl.No.1)

(A) Essential: Good Master's degree with 10 years' Research/Industrial Research experience in an Institution of University standard/Establishment of repute.

2) Reader (Sl.No.2)

(A) Essential: Good Master's degree in the subject with 5 years' research/industrial research experience in an institution of University standard/Establishment of repute.

3) Case Analyst (Sl.No.3)

(A) Essential: Same as Lecturer at

Sl.No.5.

(B) Desirable (i) For 1 & 2 above. Doctorate degree or published work of equal standard preferred.

(ii) For 1, 2 & 3 above : Candidates with specialisation in :

- Financial Management and Control, should have specialisation in one or more areas. (i) Money and Capital Markets (ii) International Financing for Industries (iii) Taxation (direct or indirect) (iv) Security analysis and portfolio management. Membership of the Institute of Chartered Accountants of India or the Institute of Cost Account-

ants;

- Marketing, should have specialisation in one or more areas: (i) Industrial Marketing (ii) Advertising Management (iii) Consumer Behaviour (iv) Product Marketing (v) Rural Marketing (vi) Marketing of Utilities (vii) International Marketing;

- Production Management, must have a basic industrial engineering background.

Candidates should have the necessary capacity to guide and undertake independent research. They should have the leadership qualities for co-ordinating the research and academic activities of the department.

4. Reader (Sl.Nos. 4,9,11,14,16, & 17)

Good academic record (as defined by UGC) and required specialisation, if any, with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research, or (ii) innovation in teaching methods, or (iii) production of teaching materials.

About five years' experience of teaching and/or research, provided that atleast three of these years should have been as a Lecturer or in an equivalent position.

5. Lecturer (Sl.Nos 5,10,18 & 19)

(i) (a) A doctorate degree or research work of an equally high standard; and

(b) Good academic record (as defined by the UGC) with atleast 55% of marks at the Master's degree in the subject from an Indian University or an equivalent degree from a foreign university;

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications other than the percentage of marks prescribed in (b) above;

Provided further that if a candidate possessing a Doctor's degree or equivalent work is not available or is not considered suitable a person possessing a good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) will be appointed provided he has done research work for atleast two years or has practical experience in a Research Laboratory/Organisation;

OR

(ii) Must have passed the National Eligibility Test (NET) for Lecturership conducted by UGC/CSIR.

6. Professor (Sl.Nos 6,12,13, & 15)

An eminent scholar having required specialisation (if any) with published work of high quality, actively engaged in research.

About ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

7. Reader (Sl No.7)

Same as at Sl.No.4

OR

(a) Master's degree in Computer Science or Master's degree in any discipline with a Diploma in Computer Science or a Bachelor of Engineering in Computer Science/Electronics and Telecommunica-

tions;

(b) Minimum of five years experience in Computer System Development, Computer programming and in conducting training programme in Computer Science/Data Communication.

Desirable: Computer systems, Models and performance evaluation/Software Engineering/Artificial Intelligence/knowledge architecture application/Computer Graphics/Excellent oral and written communication ability.

8. Lectures (Sl No.8)

Same as at (a) & (b) of 7 above except that in place of 'five years' it will be 'two years'.

9. Lecturer (Sl No.20)

(i) Good academic record with atleast second class (55%) Master's degree in the subject (Communication/Mass Communication/Journalism etc.) from an Indian University or an equivalent degree from a foreign university.

OR

Atleast second class (55%) Master's degree in Social Sciences/Sciences/Humanities with atleast a second class Bachelor's degree or diploma in Journalism from a recognised Indian University/Postgraduate diploma from a recognised National Institute.

(ii) Must have passed the National Eligibility Test for lecturership conducted by UGC/CSIR. However, this condition will be relaxed to the Ph.D and M.Phil. degree holders.

Desirable: (i) Teaching experience at College or University level.

(ii) Work experience in any area of Mass Communication (Newspaper/Magazine, News Agency, Public Relations Advertising, Radio or T.V Journalism etc.)

10. Lecturer (Sl No.21)

(i) LL.M. degree with 55% of marks and consistently good academic record; and

(ii) same as at 9 (ii) above.

III. Age

The age limit for appointment to the above posts shall be the same as applicable to State Government servants. However, the upper age limit may be relaxed by the appointing authority.

IV. Scales of pay

Professor: Rs. 4500-150-5700-200-7300/-

Reader : Rs.3700-125-4950-150-5700/-

Lecturer/C.A.: Rs. 2200-75-2800-100-4000/-

V. Instructions

(a) Applicants for the above posts should submit seven copies of the applications duly filled in alongwith copies of the academic certificates, mark lists and publications etc. (7 copies), so as to reach the undersigned on or before 20.12.91. Applications received

beyond the last date will not be entertained.

(b) Candidates who are in service should submit their application through proper channel.

(c) Government servants will not be accepted on deputation on foreign service terms and conditions, if selected. However, for those who retain lien with the Government, leave salary and pension contribution may be paid upto a maximum period of two years.

(d) Selected candidates will be required to join within one month from the date of issue of the appointment orders, unless otherwise specified or permitted.

(e) No T.A. will be paid to the candidates for attending the interview. SC/ST candidates will, however, be paid T.A. as per O.R.V.Rules.

(f) The University reserves the right to fill up or not to fill up the posts and/or to call only selected candidates for interview. Incomplete applications in any manner will be summarily rejected.

(g) No correspondence in this regard shall be entertained.

* Candidates for the post of Professor of Marine Science (Oceanography) should have Master's degree in Oceanography or a closely allied subject.

** Candidates for the posts of Professor and Reader in Environmental Science should have Master's degree in Botany or Zoology or Environmental Science.

*** Candidates for the posts of Professor and Reader in Material Science should have Master's degree in Physics or Chemistry or Material Science.

T.Hota
Deputy Registrar

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REFERENCE AND RESEARCH TOOLS

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

Invaluable reference for those seeking to register for a Doctoral Programme

The bibliography is classified by subjects and covers all the disciplines in which a doctoral degree is awarded by the Indian Universities. Each entry gives complete bibliographical details, viz., name of the research scholars, title of the thesis, university/institute where the research was conducted, years of registration and award of degree, availability note – whether the thesis is available in the university library/department concerned/university office and the name and complete address of the guide/supervisor.

Comprehensive and exhaustive as the bibliography is, it not only reports the research being conducted at the university centres, but also includes research work done at the institutions of national importance, like the IITs, institutions deemed to be universities, like the Indian School of Mines, CSIR Laboratories as also the research establishments connected with ICAR and ICMR.

The bibliography is indeed a measure of the research output of the country.

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Address Enquiries to:

Deputy Secretary (Publications)

Association of Indian Universities
AIU House, 16 Kotla Marg, New Delhi - 110 002

Telephones: 331 0059, 331 2429, 331 3390, 331 2305

Telex: 31 66180 AIU IN

GRAM: ASINDU

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

The Indian Council of Agricultural Research invites applications for the following awards:-

1. Jawharlal Nehru Award for best Ph.D. thesis in agriculture or allied sciences for the year 1991.
2. Fakhruddin Ali Ahmed Award for Research in Tribal Areas for the biennium 1990-91.
3. Hari Om Ashram Trust Award for the biennium 1991-92.
4. Rafi Ahmed Kidwai Memorial Prizes for once in three calendar years 1990-92.
5. ICAR Awards for Team Research for once in three calendar years 1991-93.
6. Dr. Rajendra Prasad Award for once in three calendar years 1991-93.
7. Jawaharlal Nehru Award for Young Scientist (Below 35 years) for once in five calendar years 1991-95.

The eligibility conditions and other details for the above mentioned awards are given below :-

	<u>Name of the Award</u>	<u>Nature of the Award</u>	<u>Eligibility for the Award</u>
1.	Jawaharlal Nehru Award for the best Ph.D. thesis in Agriculture or allied sciences.	Max. 16 Prizes of Rs.5,000/- each every year.	All postgraduate students who have obtained the Ph.D. degree during the year preceding the year of the award shall be eligible for the award. The award shall be made for notable and original research in the field of Agriculture/Animal Sciences and not for routine investigations.
2.	Fakhruddin Ali Ahmed prizes for Research in Tribal Areas.	Max. 2 prizes of Rs.10,000/- each once in two years.	Candidates working in tribal areas (tribal areas for this purpose are those notified by the Ministry of Home Affairs, Govt. of India) will be eligible for applying for the award.
3.	Hari Om Ashram Trust Award.	Max. 4 prizes of the value of Rs.20,000/- each once in two years.	All scientists engaged in research in the fields of Crop Sciences, Horticulture, Resource Management and Animal Sciences in India shall be eligible for the award.
4.	Rafi Ahmed Kidwai Memorial prizes for Agricultural Research.	Max. 9 awards of Rs.50,000/- each once in 3 years.	All research workers above 35 years of age engaged in research in the field of agriculture, animal husbandry and allied sciences in India shall be eligible for the award.
5.	ICAR Awards for Team Research.	Max. 8 awards of Rs.50,000/- each once in three years based on past 3 years continuous research of applied types.	All the persons engaged in research in the field of agriculture, animal husbandry and fisheries sciences in India shall be eligible for the award.
6.	Dr. Rajendra Prasad Award.	Max. 8 prizes once in three years of Rs.20,000/- each.	The award is open to Indian authors including Editors of Multi-author books where the Editor has himself contributed substantially together with an editorial preface. Both published works and manuscripts proposed to be published by

Name of the Award	Nature of the Award	Eligibility for the Award
7. Jawaharlal Nehru Award for Young Scientists (below 35 years)	Max. 9 prizes of Rs.10,000/- each (once in five years).	its author will be accepted provided that such a work is written originally and does not infringe the copyright of any other person. All Postgraduate students who have obtained the Ph.D. degree during the year preceding the year of the award shall be eligible for the award.

The last date for receiving applications for the above mentioned awards is 15th February, 1992. The last date for candidates in the Andaman & Nicobar Islands, Lakshwadeep States/Union Territory in the North Eastern Region, Ladakh Division of J & K State and Sikkim is 28th February, 1992.

Four copies of the application on prescribed proforma for the awards should be sent in sealed cover marked 'CONFIDENTIAL' to Shri M.G. Menon, Deputy Secretary(Admn.), I.C.A.R. Krishi Bhawan, New Delhi-110 001. A copy of the proforma for the awards mentioned at Sl.Nos. 2-6 can be obtained from him by sending a self addressed envelope in the size 27 cm x 12 cm. There is no prescribed proforma for the awards mentioned at Sl.No.1 and 7. Applications received without four sets of reprints of applications wherever necessary are liable to be rejected at the scrutiny stage.

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Proposed date for Entrance Test — February 16, 1992

A. K. Singh
DIRECTOR

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Editor :
SUTINDER SINGH

Higher Education in India Constraints and Remedies

T. Sivasankaran*

"If all is well with the universities, all would be well with the nation" said Pandit Nehru, the architect of modern India. The single most important indicator of a nation's future can be said to be the state of its higher education. Today, we have in India 193 universities, university level institutions and about 7,000 colleges catering to the needs of higher education. While certain colleges and departments of universities have played a crucial role in supporting the process of development, promotion of research and turning out graduates of excellence, the general condition of the universities and colleges in India is a matter of great concern. Education is the most powerful instrument of social reform and without it, all our developmental programmes will go awry. Education should be the foremost in our prioritisation for modernisation.

The following extracts from "Challenge of Education - a policy perspective" released by the Ministry of Education, Government of India in 1985 will let us know the present day ills of our higher educational institutions:

"It is true that against a small minority of quality products, the preponderant majority come out of institutions of higher education, perhaps with a little more of book learning and a degree, but with very little capacity for self-study, poor language and communication skills, a highly limited world-view and hardly any sense of social or national responsibility."

"Degrees and grades do not generally command credibility as a whole with the public as well as employers in the public and private sectors and the whole process of higher education has become warped, disoriented and dysfunctional, producing a large number of unemployable young men and women".

"The mass of young people continue (after their education) to regard manual activity as something inferior to the most routinised clerical work".

"Universities and colleges are becoming notorious for rampant casteism, regionalism and inbreeding. These institutions, barring a few honourable exceptions, have become virtual battle fields in which political and other factions, backed by teachers and aided by other staff, often fight pitched battles for power and supremacy".

"The number of effective working days in a year even according to the schedule is far below desired levels".

When we look at this dismal picture, we are tempted to throw our hands in despair and say it is difficult to set it right. It was Mr Allen Hume who, in a Convocation address delivered at Calcutta University in 1883, said, "If only fifty men good and true can be found to join as Founders the thing (a National gathering of Indians) can be established and the further development will be comparatively easy". He also added frankly, "If they can't renounce personal ease and pleasure, India then neither desires nor deserves any better government than what she enjoys". Mr Hume wanted only

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fifty graduates of integrity and courage. But today, we require at least 50,000 (fifty thousand) to remedy the situation. We should remember our yesterdays before we begin to work for the tomorrows. We must march forward and feel that what is ahead of us is better than what is behind us. In any march ahead, we meet with constraints and encumbrances the elimination of which will pave the way for the country's good. Any educational policy making will have to take the realities into consideration and see that the constraints do not in any way impede the progress of education.

Education is everybody's concern but nobody's concentration. The more it deserves attention the less it is being attended to. In a country where the majority of the electorate is illiterate, it is only natural that education is not taken very seriously. The elitist public and the affluent classes would like to thrive on the ignorance of the masses. There is no social demand on the teachers for a higher level of performance in the present system. Further in a very large system of management and evaluation, it is easy for the teachers, to acquire almost complete immunity from accountability. The first pre-requisite for improvement of teaching is that all the teachers will have to stay in the campus of the college or live within a radius of 5 kms.

To some extent, we are responsible for the intellectual inadequacy and spiritual illiteracy of our students. The mushroom growth of tutorial colleges and coaching shops will have to be stopped. Bazaar guides and cheap notes should be banned. Malpractices and Mass-copying must be put an end to. The teachers will have to make their teaching more innovative and interesting. Agitational approach and politicking will have to be given up in order to promote moral values in their wards. The teachers should be dedicated and diligent and the students must be hardworking and disciplined.

The scheme of Merit Promotion will have to be enforced in order to check the prospects of people with doubtful credentials. In a decentralized system of management, the educational authorities will lose some of the privileges and the prestige which emanate from them. The Managements must be empowered to make appointments and promotions and impose punishments where necessary.

The new communication technologies can be a facilitating factor for a new initiative in the field of education. A realistic assessment of the preparatory work involved leads us to conclude that the gains from these will be quite marginal. It is relatively easy to acquire the hardware but the development of software to deliver relevant knowledge and inculcate appropriate attitudes requires a lot of planning, insight, observation,

experience and ability. More than these, these are quite expensive and require reliable management for repair and maintenance. The role of television and film strips in higher education has to be viewed from another standpoint. The glamorising of crime and gross display of wealth presented on the cinema and the TV screen will have an adverse effect on the young minds.

It is very essential to consider the economic constraint as economy plays a vital role in the acquisition of knowledge. In a country where two thirds of the population are still below the poverty line, equality in the quality of education is almost an impossibility. Alleviation of poverty requires changes in the technologies of production in the rural and unorganised sector. In the *Garibi Hatao* endeavour of this country, we require young men of merit who can face challenges. One of the pre-requisites for modernisation in education is the establishment of institutions of excellence at the level of higher secondary schools and colleges. For this, it will be necessary to identify young people of talent, admit them on merit, give them the best possible education, put them in appropriate environment so that they can improve a lot in their own country. Brain drain should be drastically checked.

Though education is a concurrent subject in the constitution, the impact of this provision is still to be incorporated into the legal framework of the educational system. Both the state and the central governments have to do a lot more in the matter of providing minimum facilities in the schools and increasing the efficiency of the educational process. A uniform National Core Curriculum is possible only when there is a legal framework.

In respect of the structure of universities and colleges which are based upon laws framed by the state or the central government, many questions are raised with regard to their style of functioning and efficiency of management. It is felt that the management system of universities has to be changed in tune with the increasing size of the organizations and different authorities will have to be assigned their specific powers and responsibilities. As regards universities and colleges, there are too many masters and the administration has to be streamlined. The relationship between different authorities has to be clearly demarcated. Autonomy and accountability should go hand in hand with each other.

It is hardly necessary to point out the relevance of financial constraint in the context of higher education. The provision of a sizeable financial assistance is the *sine qua non* for the qualitative and quantitative im-

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provement of higher education. Adequate thought should be given to the methods of raising funds for higher education. It will have to be clearly decided as to what should be the proportion between central and state funding for educational programmes. The politicians and the administrators must realise that the money spent on education is an investment which, if properly spent, will bring rich returns. The funding should be at least five times more than what is now. An American university's annual budget is around Rs.250 crores when our university's is just Rs. 7 or 8 crores.

As one who has been in the field of higher education for well over three decades and as principal of a college for more than two decades, the author of this paper wants to express the difficulties which can be classified as administrative constraints. We, in India, imitate the West only to our interest and not to the interest of the country. For instance, we have adopted the semester pattern for continual assessment of the achievements of students. But we have ignored the assessment aspect of the teachers' achievement. In the States, the method they follow in appointment is quite conducive to academic atmosphere. Quite periodically the teacher's intellectual attainment is gauged and guarded. Periodical publication of research papers is a necessity for the continuance of the teacher in service. No teacher is permitted to bask in the euphoria of permanence there. The rules regarding working days and holidays are very clear and give no room for evasion of work. Unless the authorities concerned are empowered to reward the sincere teachers and take corrective measures against the erring ones, it may not be possible to get the work done by the teachers. Even the most advanced and civilized countries in the world have not thought of the concept of time-bound promotion. But we have agreed to it much to the detriment of the quality of education. Once a young man takes a postgraduate degree and joins an institution, he thinks that he has reached the summit of scholarship and rests on his oars. This is really bad.

The increments are to be sanctioned based on the performance of the teacher. Increments can even be doubled in deserving cases. Maybe it sounds a bit primitive but it will go a long way in toning up the quality of education given to students. It is not as though the writer is keen on curbing the freedom of the teacher. But he is keen on seeing every teacher a studious scholar and sincere preceptor. Teachers can argue that their liberty is curtailed. But liberty and duty are like the two sides of a coin. One can't have one side of it only. I dream of the day when every teacher becomes a cormorant scholar in his discipline.

The present system of appointment leaves much to be desired. The management and the principals are unable to appoint candidates as and when vacancies arise. Sanction from the university approval from the government and the list of candidates from the Employment Exchange are to be got for an interview. The process of filling in a vacancy takes a lot of time and the appointed teachers will have to wait sometimes even for a year to receive their salary. Students have their classes cancelled and so they become active promoters of campus unrest.

Before closing, attention needs to be drawn to major constraints in the field of education.

The first one is total absence of motivation at all levels in education. The teachers are not motivated well enough. So much is expected of the teacher, yet teaching has become the last choice in the job market. We, therefore, face a paradox of having better books and research but progressively more indifferent teachers. Motivation is a must for the successful implementation of the programme. The government must give greater priority to education and its financial needs.

The other is the want of 'poetic justice' or the law of Dharma. The dedicated teacher must get his reward and the delinquent one must receive the reprimand. Good monitoring of the teaching work and periodical inspections will positively improve the quality of teaching in colleges.

If all these constraints are removed or at least their deterrent powers are reduced, higher education will improve and standards of achievement will be higher than what they are today.

To conclude, "Education must provide the nation with good workers and good managers. More, it should provide thinkers and seekers of light. Education is much more than preparation for a career or a means of acquiring skills for particular professions. The best education is at once a means and a fulfilment".

To Our Readers

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

NEEDED: VALUE BASED EDUCATION

H.G.S. Arulandram*

The National Policy on Education 1986 rightly in unequivocal words expresses its grave concern over the decline of basic moral values in society in general and student community in particular and the Acharya Ramamurti Committee which reviewed the National Policy on Education reiterates thus: "In recent times, there has been perceptible universal decline of basic moral values. The phenomenon acquires a special poignancy for us in India, considering our great civilization and heritage. Our education institutions which have not escaped the impact of this pervasive value decline, have a special responsibility to respond to the situation with great concern and subtlety, playing a vital role in value education ... It should become an integral part of the entire educational process and school climate. Values such as democracy, secularism, socialism, scientific temper, equality of sexes, honesty, integrity, courage and justice (fairness), respect for all life forms, different cultures and languages, etc. constitute the mosaic of values which is vital to the unity and integrity of the country. If the process of education is not informed by these basic values it loses its intrinsic merit altogether. All curricular and extra curricular activities in schools and colleges should convey this message with clarity and resolution". And therefore it pleads for a new education; an education for life — a man-making education.

The dictionary defines value as "intrinsic worth or goodness" or as "that which renders anything useful and estimable". Value is identified with broad fundamental norms which are generally accepted and shared by the members of the society or subgroup and which serve to integrate as well as guide and channelise the organised activities of members. The term denotes a shared cultural standard with an element of normativeness and ethical and moral overtones. Value is something which is important, significant, useful and emotionally satisfying. Although the listing and compartmentalising of values could seldom be exhaustive and watertight, values are of different kinds — ethical, moral, religious, human, fundamental values etc. In short values could be classified into two major categories — interpersonal and intrapersonal values. While intrapersonal values

are very much concerned with the individual or self, interpersonal values are mainly societal. Human life is mostly influenced by heredity and environment and values are mainly acquired by environment. In this context, education plays a vital role in the formation of values.

Value based education in Bertrand Russell's words is "The formation, by means of instruction, of certain mental habits and certain outlook on life and the world". It may be termed as a pedagogic outlet for "Conscience Collective". It is elucidation and popularisation of semantic matrix of a culture in the environment of formal education. It is knowledge oriented education and it is mostly a teacher-learner interaction for the inculcation of socio-culturally approved personality variables. In value based education man is not conceived of in ethically neutral terms but as a phenomenon full of divine potentialities.

While much has been said and talked about value based education, very little has been spelt out how to implement it. Following are some of the suggestions for successful implementation of value based education at all levels of learning :

- There must be a proper identification of values.
- Syllabi in languages must provide for the inclusion of texts whether poetry, essay, novel, drama or the short story which either contain or offer ample scope for the inculcation of values.
- Importance must be given to values which will help fight the most common and dangerous social evils like violence, corruption, casteism.
- Value education must ensure the development of the affective aspect of learning and the realization of what is truly excellent in human nature. It should not lead to indoctrination but help the blooming of excellence in every mutually inclusive sphere of the human personality, namely the physical, intellectual, emotive and spiritual.
- There must be a proper stress on the development of "Love" as an important aspect of the human personality and social relationships.

*Director, Curriculum Development Cell,
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(Contd. on page 14)

Restructuring Commerce Courses at Undergraduate Level in Maharashtra State

V. N. Ingale*

B. B. Ekshinge**

I

Knowledge liberates. It is acquired through learning. Learning takes place through informal, non-formal and formal education. Education is very powerful weapon to develop the youth and transform society. It is the only medium for national development too.

In the modern world, formal education system acquired importance but our Indian education is regarded as a bastard child of western demand and Indian practices. Due to this, traditional formal system of education has failed miserably. The syllabi of various traditional and conventional courses were/are full of shortcomings and drawbacks. This system has been bitterly criticized for the gap between what is taught and what is needed. This is not related to life and need based. There is gap between theory and practice as well as ideal and reality. Moreover, due to the explosion of knowledge and population growth, this system cannot accommodate and satisfy all. By and large, the conventional courses produce degree holders who had been declared successful in examinations but fail bitterly in real life. Hence educationists and particularly UGC felt the need of restructuring courses which would produce youth with uptodate knowledge with productive and creative skills and with high character. Before restructuring our courses, we have to visualise our ideal society in future. This society should provide equal opportunities and social justice to all. This new restructured system, will involve the WHOLE MAN, who is going to keep pace with time and face the fast approaching dawn of 21st Century confidently and bravely.

Objectives

The need of restructuring of Commerce Courses is felt the most. The existing conventional courses are old and worn out. These are to be restructured and reoriented in such a manner that students can be motivated to acquire more and more knowledge, apply it to the problems of the people and help them in

individual, social and national development.

The objectives of the restructuring Commerce Courses at undergraduates level are to :

- (1) develop dignity of labour, self-confidence and self-reliance among students;
- (2) develop self learning habits to acquire knowledge and to apply that knowledge to solve practical problems;
- (3) inculcate appropriate skills of productivity and creativity for self-employment, employment with the help of vocational knowledge and skills;
- (4) create real awareness about social, economic, cultural and natural environment of changing society;
- (5) use community as a laboratory for their study and research and to serve in its development and thereby help national development;
- (6) motivate the students to be alert about individual development, social development and national development and to integrate them with moral values and national integration; and
- (7) develop among the present youth the principles of humanity as the ultimate goal.

In short, the present youth who are the pillars of the future India should be made aware that everyone should develop and dedicate themselves to produce something with his hands, create something new for the common welfare. It means the whole object of restructured courses must be concentrated to achieve productivity and creativity for humanity. This trilogy is the essence of life. So this trilogy must be the main objective of our present and future education which should be shaped in such a manner that we achieve the aforesaid trilogy.

Pattern of Restructured Commerce Courses at Undergraduate Level

The pattern of restructured Commerce Courses at the undergraduate level will have following Components :

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Component A = Foundation Course,
 B = Conventional Subject Courses,
 C = Applied Courses,
 D = Vocational & Skill-oriented Courses,
 E = Value Oriented and Development Study Courses.

1) *Component A – Foundation Course* : This course should provide a broad and strong base of modern world, its knowledge of various faculties particularly science and technology and its role in social, cultural and national development. It means, youth should be conscious about the concepts of individual, social, and national development and it should include thought technology, information technology, code of conduct and value-oriented cultural life in India. Thereby, the all round development of the student is possible and he will become a good citizen by studying this course carefully.

(2) *Component B – Conventional Subject Courses* : These are the courses presently being taught to the students at undergraduate level. These courses should be so restructured that these will keep pace with latest knowledge in the world. These courses should not be taught in traditional method of lecturing only. Presently not teaching but learning should be upheld. And this learning should be acquired by doing i.e. the subject should be taught with practical bias. Thereby student's hands must develop productive skills; head should develop thinking process and creative skills and the heart should cultivate values and cultural aspects of good citizenship in the world, inculcating in him the behavioural skills of humanity.

(3) *Component C – Applied Courses* : This component will be complementary to the component B. The courses will be of applied nature. Thereby the student will learn the skills of acquired knowledge and its application to the practical problems of the people and evolve solutions. It will also include the project work courses to generate in the student community the scientific outlook and to develop in them the research aptitude in order to integrate acquired knowledge, skills and behaviour.

(4) *Component D – Vocational & Skill-oriented Courses* : These courses are designed to equip the students with productive skills which may help them find a job or to start their own business or industry. These courses will lead the youth to join hands with sons of the soil i.e. his fellow beings. These courses will motivate them to make friendship with businessmen and men of industries and trades. Thereby they will help the nation in production activities.

(5) *Component E – Value-oriented and Development Study Courses* : These courses are mentioned at the last but these should be given first priority as far as moral

values and development are concerned. This aspect of value and development orientation in education has been neglected. These courses will make the present youth development-oriented and prepare them as socially conscious. By the study of these courses the youth will be able to develop himself, society and nation also.

Pattern for the Commerce Degree Programme

The distribution of the components at various levels in the undergraduate Commerce Courses will be as follows:

Level	Components						Total No. of Courses
	A	B	C	D	E	F	
B.Com.- I	1	4	-	1/2	1/2	1	7
B.Com.- II	-	4	1	1/2	1/2	-	6
B.Com.-III	-	4	2	-	-	-	6

Explanation :

- (1) Each component from A,B,C groups will carry 100 marks and component D & E will carry 50 marks each or D & E components will form one paper of 100 marks.
- (2) For B.Com-I & II, D & E components are given 50 marks each because value-oriented education (E Component) is as important as vocational skill-oriented education (D Component).
- (3) For B. Com-III, D & E components are excluded because their value oriented education will be completed through Component A at B.Com-I and through Components D & E at B.Com-I and II level. B.Com-III students are made free from components D & E because it is felt that they should get ample time to concentrate on specialization and two applied courses out of which one is project course that may help them to integrate their knowledge, skill and behaviour.
- (4) Study of mother tongue Marathi or national language Hindi has been nearly completed by students at + 2 Stage. However Marathi/Hindi (Component F) subjects are kept optional for those who are interested in developing language skills. For other students, other optional subjects like Maths/Statistics/Insurance etc. should be provided.
- (5) In distributing the components at different levels, we have kept in mind the present position of papers and workload and tried to retain the same. But at B.Com-I level, unavoidable

course i.e. foundation course is introduced as per the guidelines of UGC. Hence the financial burden caused by this new paper must be borne by State Govt. Moreover, general education, special education and integration of these two which is the need of the day is also considered in distributing the components.

II

Evaluation system is the most powerful method in the field of education to achieve qualitative output. It has been accepted by educationists from primitive age. It has been changing from time to time in order to minimize the short comings. Now time has come to change the present evaluation system entirely, according to the revised structure of courses and to minimize the present shortcomings.

To evaluate means to find out, decide, the amount or value of something or somebody. In the field of education, evaluation system is designed mainly to evaluate the academic performance, skills and values acquired by the students. But it is not enough. Evaluation of teachers is also equally important as they are shaping spirit of the society and the destiny of the nation.

Present System of Evaluation and its Shortcomings

The present system of evaluation in the field of commerce education is written examination only. This system of examination has been practised for a long time even though it is full of defects/shortcomings. These shortcomings are as follows:

- (1) Evaluation system lays undue and unnatural emphasis on written examination only which nullifies the purpose of education;
- (2) It evaluates the information only and not knowledge and its application. It tests the memorization to some extent but it pays no attention for testing students' understanding as well as analytic and synthetic abilities.
- (3) It lacks internal and continuous assessment as it assesses the students once a year and that too by external examiners who have never seen the faces of the students.
- (4) It is subjective and not objective.
- (5) It produces paper degree holders only and causes unemployment and indiscipline in the society.
- (6) It lacks the evaluation of vocational, profes-

sional, technical and oral and behavioural skills.

- (7) It lacks exact mode of measurement for the evaluation.
- (8) It lacks accountability and creditability of the concerned people, i.e. students, teachers, non-teaching staff and even the educational institutions.
- (9) It helps in leakage of question papers, mass copying practices, payments of bribes to evaluators and boycotting examinations, resulting in deterioration in quality of education.
- (10) It lacks the most important point i.e. value evaluation. Because value evaluation helps in preparing good citizens for individual, society and national development.
- (11) In the present evaluation system the development of the whole man is not being assessed.

Prerequisite of Modified Evaluation System

Even though there are so many defects/shortcomings stated above in the present evaluation system, nobody can deny the importance of the examination for the purpose of evaluation as there is no alternative evolved to replace it. Therefore, it should be modified in such a manner that we can minimize its present defects or shortcomings and improve its quality, accountability and creditability.

The objectives of the modified evaluation system must be very clear in the minds of educationists and the teachers. It should lay emphasis on knowledge and its application, continuous internal assessment of vocational, professional, technical and oral skills, and change in attitude and behaviour based on values to achieve the productivity, creativity and humanity from the student community for individual, social and national development.

Some Suggestions

- (1) For the sake of evaluation the weightage of theory and practical/field work should be 60 percent and 40 percent each for the above Component Courses. Annual written examination be conducted of 50 marks and 10 marks will be allotted to oral examination. These examinations will be conducted by external and internal examiners. The question papers expecting long answers, short answers and brief answers should be set from already prepared question banks. These question papers should be set before the commencement of the examination. Every student or group of stu-

dents would get different but equivalent question papers covering all the topics from the syllabi. The oral examination carrying 10 marks will be conducted as soon as written examination is over. Assessment is done immediately and results are to be finalized within short period of time. By this system problems of leakage of question papers, copying, malpractices and payment of bribes to evaluators will be minimized and through oral examination, students' capacities of oral skills will be tested.

- (2) 40 marks should be allotted for practical/field work and continuous internal assessment done by the university and college. The break-up of these 40 marks will be as follows:

- (a) 20 marks should be allotted to two internal assessment tests (each per term) on the lines of Shivaji University, Kolhapur, pattern; Nature of question papers should be on the lines of MPSC/UPSC examinations. It would help the students to prepare themselves for competitive examinations.

- (b) The remaining 20 marks should be kept reserved for college teachers and principals for continuous internal total evaluation of students. The break-up of these marks will be as follows:

There will be four items of continuous internal assessment.

- (i) Reading books and effective library use by students.
- (ii) Co-curricular activities related to the subjects such as seminars and group discussions, case studies and small projects. Simulation and role playing exercises, oral and interview techniques, tutorial/field visit etc. recorded in journals.
- (iii) Social work and extra curricular activities such as NSS, NCC, Adult Education, Sports, Debates, cultural activities, college magazines etc. recorded in journals or files.
- (iv) General behaviour of the students: regularity in academic & other activities, behaviour with fellow students, teachers in college campus and with other people outside the college. Observations of the teachers about these aspects be recorded in cards. Such continuous evaluation will motivate the students for their all round development and the problem of absenteeism will also be solved by this method.

- (3) Semester system recommended by UGC should be adopted. The syllabi should be divided in such a manner that it should start from elementary to advanced and from advanced to applied nature in all the six semesters.

- (4) Marks obtained by students in theory and practicals and continuous internal assessment done by university and the college may be shown separately in the marks sheet but these marks should be given weightage for determining the class in the degree certificates. Previous Internal assessment systems in semesters have utterly failed because such weightage was not given to the marks obtained by the students in continuous internal assessment for determining the class. So the students did not take the system seriously.

- (5) There should be one evaluation system for all the components A, B, C as well as D & E controlled by the university and college respectively. Even though the performance of the students in the courses with different objectives in the domain of theory, practicals and oral and continuous internal assessment should be taken together for deciding the final grade or class because the integration of these different domains makes the complete or whole man.

- (6) Examinations have to be related to the goals of education. These goals should be to enable the students to acquire the capacity to learn new facts; to understand and comprehend them; and to develop the capacity to apply these facts to obtain more and more knowledge, to develop the capacity to analyse the problems and to synthesise knowledge.

- (7) The other important attempt of reform can be the improvement in scoring which requires great amount of attention, since it is the stage where the fate of the student is decided. The biggest hurdle in the way of scoring is based on subjectivity. To minimise the scope of subjectivity and to ensure just scoring, model answers should be prepared in advance along with the scheme of marking to impart uniformity of assessment.

III

Orientation & Evaluation of Teachers

It is a universally accepted fact that, education i.e. teaching-learning is a joint enterprise to be undertaken by the teacher and the taught in which good teachers make good students and vice-versa. So it is universally accepted fact that first rate quality of education can be imparted by first rate teachers. But first rate teachers are few in numbers which should be increased. The first rate teachers can be developed through pre-service

training and in-service training; but unfortunately there is very little arrangement for teachers training at college and university level.

The teachers should be properly trained, oriented and inspired through different kinds of motivations and pre-service and in-service training in order to equip them with qualities of ideal teachers i.e. commitment towards work, clarity of goal of teaching, desire to obtain academic excellence, identification with institution, love for the student community, social awareness, social responsibility and social justice and strong will power to become an ideal teacher.

Therefore, opportunities for these trainings should be created and made easily available to those who aspire for joining the field of education. Government should take bold steps to make these arrangements of teachers' training. In this respect we would like to suggest the following :

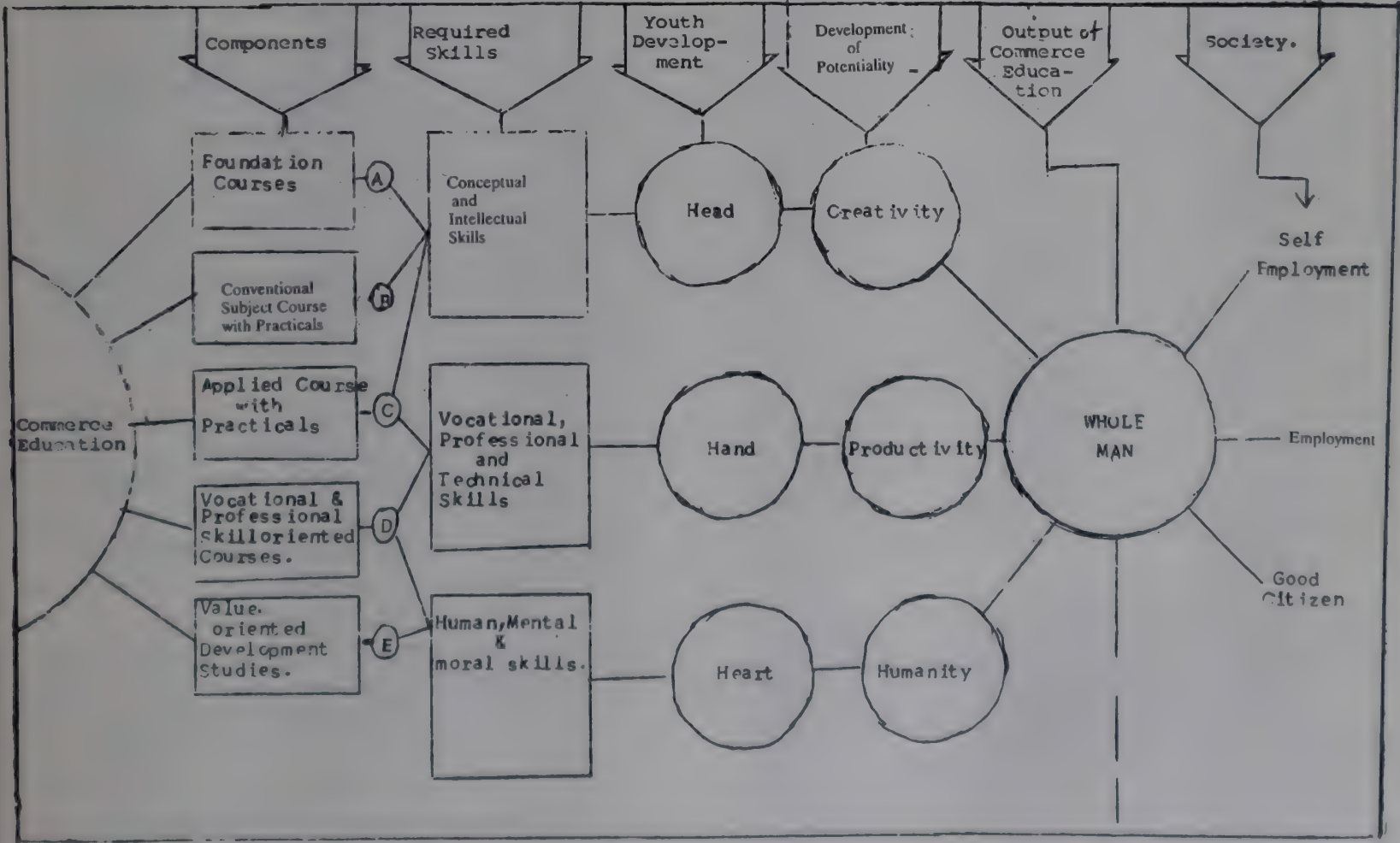
- (1) Those who are willing to opt for teaching profession they must work as an internee in the educational institution for one year.
- (2) There should be a pre-service training course for teachers which should be made compulsory

for all.

(3) There should be refresher and orientation courses to the teachers who must complete either one during each interval of two years throughout the service period.

Now-a-days there is examination for students whose evaluation is done by the teachers but there is no provision for teachers' evaluation. This is not fair. Evaluation of the teachers is a must to goad him towards the goal of an ideal teachers. In addition to the existing system of evaluation of teachers, evaluation of teachers by students should be introduced at least at higher levels of learning. While implementing this scheme of evaluation by students, teacher's respect and dignity should be maintained. In this respect, utmost care should be taken to plan questionnaires for the students. The opinion of a majority of students should be considered. As this teaching-learning process is the joint enterprise of teachers and the taught, both student and teacher communities should evaluate each other in healthy spirit in order to achieve academic excellence for individual development which leads to social and national development. And that is our ultimate goal of higher education.

APPENDIX - I



Classwise Subjects to be Offered Under the Pattern

- B.Com.-I**
- A) 1) Foundation Course
 B) 2) English
 3) Accounts & Costing.
 4) Business Economics-Micro,
 5) Organization & Structure of Commerce.
 6) Marathi/Hindi/Maths/Stat/ Insurance – any one.
- D 7) One subject from D of 50 marks.
 + And
 E One subject from E of 50 marks.
- B.Com.-II**
- B) 1) Business Communication.
 2) Business Economics-Macro.
 3) Accounting & Costing.
 4) Business Organisation & Management.
 C) 5) Any one of them.
 D 6) Any one of them 50 marks.
 + E Any one of them 50 marks.
- B.Com. -III**
- B) 1) Business Environment
 Entrepreneurship Management.
 2) M.Law & Industrial Law.
 3) Two Papers of any one of the following:
- Advance Accounting & Auditing.
 - Advance Costing.
 - Advance Banking.
 - Advance Statistics.
 - Co-op. (Rural Development).
 - Industrial Management.
 - Public Enterprises.
 - Insurance & Transport.
 - Indian Planning (Development)
- C) 1) Subject offered at B.Com-II will be continued.
 2) One course in project work.

Note: List of the subjects related to courses under Components C, D, E are given below.

List of Courses**Under C Component – Applied Course****At B.Com.-II & B.Com.-III level.**

- 1) Entrepreneurship Development.
- 2) Theory & Practice of Management, Or Applied Management.
- 3) Banking Business & Finance.
- 4) Insurance.

- 5) Applied Account & Accounting.
- 6) Applied Costing.
- 7) Public Relations.
- 8) Integrated Rural Development.
- 9) Applied Statistics.
- 10) Marketing Management.
- 11) Computer Application and System Management.

D. Component - Vocational and Professional Courses :**I - Non-Technical Courses:**

- 1) Office Management.
- 2) Secretarial Practice.
- 3) Account Writing.
- 4) Salesmanship & Advertisement, Sales Management.
- 5) Management of Co-operative Society.
- 6) Storekeeping and Purchasing Material Management.
- 7) Tourism Management.
- 8) Commercial Journalism.
- 9) Small Scale Industries & Translation Skill.
- 10) English Conversation & Translation Skill.
- 11) Taxation & Consultancy.
- 12) Legal Literacy & Society.
- 13) Home Management.

II - Technical Courses:

- 1) Construction Supervisor.
- 2) Motor Rewinding.
- 3) Electric Wireman.
- 4) Household Appliance Repairing.
- 5) Tailoring & Cutting.
- 6) Embroidery & Fancy Work.
- 7) Photography.
- 8) Radio & T.V.Repairing.
- 9) Typewriting.
- 10) Composing, Printing & Book-binding.
- 11) Statistical Techniques.
- 12) Interior Decoration.
- 13) Basic Mathematics.
- 14) Computer Operation & Programming.
- 15) Ayurved for day-to-day life.
- 16) Naturo-pathy for Common People.

E- Component : Value-oriented Development Studies

- 1) NCC
- 2) NSS
- 3) Social Work
- 4) Adult Education
- 5) Population Education
- 6) Code of conduct in the concerned profession
- 7) Human Resources Development
- 8) Career Planning and Development
- 9) National Integration.

Uses of Computer in Social Sciences

An Overview

S.P. Punalekar*

Vimal Trivedi**

Major Trends in Social Sciences

Social Sciences have a recorded history of over three hundred years. It has a legacy of intellectual formulations and viewpoints which we may call as schools of thought. It is not necessary for us to go deep into origin and evolution of various social science disciplines. However, we may focus on the major trends and tendencies in last 100 years. According to available literature on history of social sciences, the following trends seem to dominate the scene:

First, there is a serious rethinking on major premises and positions pertaining to each discipline. In economics, neo-classical approach is being reexamined and enlarged. Long cycle theories are propagated to explain social transformation. In sociology, there is an increasing shift towards globalisation of basic concepts and categories. In history, there is emergence of sub-altern school. So are the shifts in political science and other social science disciplines.

Secondly, alongside emphasis on quantitative parameters, there is equal but pronounced emphasis on qualitative dimensions. Examples of this can be found in theories dealt in economics, sociology, political science and anthropology. Interestingly, anthropology which earlier placed major stress on qualitative dimensions, has now completed full circle through quantitative to qualitative dimension again. Writings of Godelier and Gadamar are examples of this articulation.

Thirdly, being disillusioned by fragmentary and disjointed reflections on social realities, there is now rigorous attempt to integrate several disciplines in the network of holistic analysis. This integration is intended to generate organic linkages and dialogue. This is evident from new combinations such as political sociology, social history, economic anthropology, etc. This is indeed a desirable development capable of generating 'new' perspectives and 'new' data.

Fourthly, even basic concepts like macro and micro are redefined with a view to obtaining more authentic representations of a ground level reality. The earlier obsession with macro models or macro systems is being replaced by an urge to deconstruct old stereotypes and reconstruct viable and meaningful conceptual categories. This is evident when one looks into current literature on rural development, communitarian cooperative projects, feminist movement, ecology group dynamics, grassroot politics, literature of the oppressed, etc. This particular tendency of examining social realities, both at an individual and group level, is certainly very helpful for theory building and innovative methodology in social sciences.

Fifthly, the entry of the so-called non-social scientists in the field of social sciences marks a distinct phase in the evolution of social sciences in developing countries. This process began in England, Germany and France around the turn of this century. But now in the third world countries also, this tendency is manifest. There is increasing participation of bio-scientists and technologists in the process of building social science. In India also there is distinct evidence of this. We come across physicists, engineers, medical doctors, etc. taking interest in social science subjects relating to development and modernisation. Indeed this is a healthy collaboration and will certainly benefit both the social sciences in general and other bio-sciences in particular. In fact, we cannot have rigid boundaries within social sciences and between them and non-social sciences. After all both aim to study the processes of development with their own distinctive approach and perspectives and also methodologies. It is in this context computer science and its discoveries assume special significance. We turn to this aspect now.

Uses of Computers

Computer has come in the mainstream of intellectual scientific life in last four decades. In these four decades there is remarkable growth and transformation in its technological structure. The replacement of vacuum tubes first by transistors and then by integrated circuit has reduced size, shape and the prices, while it has also increased speed and memory. Computer costs and also prices are rapidly declining, albeit the slight hike in the

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past few months. The users are becoming much more knowledgeable about the use of computers. Also there has been considerable development in the area of software and data management utilities. Several user friendly softwares are available today on a wide range of hardware platform with nominal cost. Now users need not necessarily know anything about computer architecture or any of the several programming languages and still they can use them.

Basically usefulness of computer for the users is two-fold: (a) it records and stores information upto largest limits; (b) it processes and reproduces the information on variety of parametres with several permutations and combinations. In a world where information constitutes an important basis for analysis and decision-making the computer remains a very valuable technological tool and an asset.

Alongside the above advantages it has the following specific merits:

- (1) It requires less space for storage of information. The data can be transferred and transformed into desirable framework.
- (2) It has the merit of mobility i.e. it can be moved from place to place without much loss and damage in transit. For libraries and data archives, the computer is indeed a boon.
- (3) It reduces the human error in calculation to the minimum because of automatic and accurate control devices in computer hardwares. This facilitates proper data output.
- (4) Also computer systems have generally the built-in mechanism for incorporating future upgradations i.e. the improved softwares can be effectively used on the same old machine. That reduces overall cost and minimises future investment.
- (5) Because of acceptance of multiplicity of languages, the data can be suitably recorded with reference to different socio-cultural and economic systems.

Computers in Social Science Research

The use of computer in social science research is gradually becoming more common and widespread. The social scientists can now draw upon computer's countless facilities. Today more and more computers are in use for (a) data processing, (b) report writing, bibliography and index, (c) graphical presentation and mapping facilities etc.

(a) Data Processing

Computers are extremely useful for the routine processing of large quantities of data. Indeed the need for large scale processing has led directly to the develop-

ment of computer. Such processing includes classification, sorting, storing and retrieval of data which can be presented to the computer in a suitable coded form. These routine tasks, termed data processing, constitute the most important use of computers at present in social science. Because of their capabilities for carrying out arithmetic operations at a high speed, the computers are widely used to carry out lengthy calculations. The term data processing is used here to describe the procedure defined below:

Input	: read incoming data ;
Processing	: perform arithmetic operation, comparison, and data transfer etc.;
Output	: produce outgoing information.

Social scientists generally deal with qualitative as well as quantitative data collected through observation and empirical investigations. In social sciences in India, survey based research has made much headway and has gained a prominent place in academic activities. More and more researchers are now engaged in generating and making use of survey research data for the study.

However, effective use of survey research data needs careful planning on all fronts, ranging research design, data collection, codification and quantification of data for their processing to empirical generalization. There is a higher degree of variability in data. The research methods are less standardized and there are difficulties in measurement, data reduction, data transfer and decision making. In such a situation, the researchers do need computer support which can be useful for data analysis in a simple and convenient manner.

With the modern facilities of machine processing of data, things have become both simple as well as complex. Simple because data processing has become much more faster with facilities for more rigorous analyses with less chances of error. It is complex because machine processing needs some understanding about the machine, what it can do and how. Now the researchers must be aware of these facilities, so that they can manage the analysis of data more effectively.

The social science researchers need computer support to facilitate the following processes:

- Entering and analysis of alpha and numeric data;
- Selection of specific or random sub-samples;
- Recoding, weighting, computing and generation of new unitary or composite variables;
- Computation of logical and mathematical expression;
- Dealing with "missing value" including blanks in data, data errors and special codes;
- 'Labeling' to better identify the results;
- Statistical procedures for analysis of data and decision making;
- Output which is easy to read and which is preferably

usable directly in report.

Use of computer for data processing in the social sciences has become relatively common place. By processing data quickly and efficiently, the computers have greatly facilitated the flow of information. All quantitative research involves the application of various statistical techniques that are used to arrange and analyse the data.

Most colleges and universities as well as many professional institutions now have one or more statistical software such as RATES, Stat Graphic, SPC/SPS (Statistical Process Control and Statistical Problem Solving), SPSS packages etc. The statistical package for the social sciences (SPSS) is one of the most popular and effective softwares. It covers a broad spectrum of statistical procedures. Further it is designed in such a way that even persons having meagre background of computers can also comprehend and use. As one becomes familiar with the SPSS, one will find that directing the computer to perform the routine statistical analyses that are appropriate for their data is very simple and easy. This package enables a researcher to generate variable transformation, to recode variable, sample, select or weight specified cases, and define information.

The SPSS package contains usual descriptive statistics, simple frequency distributions and cross tabula-

tions, simple correlation (both ordinal and interval), multiple regression, T-test, one way, means, anova, factor analysis, discriminant analysis, multivariate analysis of variance, non-linear regression, categorical and time series analysis. It also provides graphics and mapping facilities.

(b) Report Writing

The computers can also be used in meeting the needs of report writing, bibliography and indexing. At the time of writing a dissertation, book or a report, the researchers often require the help of a typist. After typing a draft version of the text, the researchers require help to edit the text. Good typing is now-a-days a difficult thing to obtain. Typed drafts need repeated editing. This is very much expensive and also time consuming task. To reduce time and money as well as dependence on the typist, many word processors such as Word Star, Word Perfect, Word etc. are now available in the market. Word processing or text processing is a computer age term for typing and editing any kind of text. The idea of word processing is that one can type the text using an electronic equipment like computer. Errors can be corrected, text can be rearranged, and required modifications can be very easily done. Text can be viewed on screen and if one is satisfied, can take a print out on paper.

Though the ultimate product is equivalent to that of

UNIVERSITY NEWS

will bring out a **Special Number** to commemorate the

10th New Delhi World Book Fair

being organised by the National Book Trust, India on
1-9 February, 1992. The theme of the Special Number will be

THE LITERATURE OF OUR TIME

The term literature has been taken in its true sense to mean literature of all subjects and all languages. Readers are invited to contribute to the **Special Number**. They may concentrate on a particular title they happened to read in the recent past that they really enjoyed and would like to share with other readers the thrill, the ecstasy they experienced. In the alternative, they may even pick up a particular author who fascinates them or inspires them. Or, they could also take a wider canvas and examine the books published during the last decade to pick up the trends of development in their subject.

Join in this voyage of discovery to find out if books are really the faithful mirror of society – the purveyors of our culture and an index of our aspirations, growth, and our trust in the future. Your contributions should reach us latest by 20th December, 1991.

a manual typewriter, the computers have great flexibility and a variety of tools to facilitate the researcher's work. Most of the word processors allow users to perform standard processing tasks such as typing text, correcting errors, centering text, right justification, moving sentences and paragraphs, setting margins and tabs, calculation, spell check, footnotes and end notes, box drawing, tables of contents, indexes, fonts facilities, printing boldface, underlined, wordwrap, wordwrap, mailmerge etc.

(c) Graphics and Mapping

Sometimes researcher may require to represent his/her data by graphs and charts like bar diagram, pie charts, curve etc. There are packages such as SPSS, Fixograph, Lotus, Cartography etc. available for graphics presentation.

Most of these programs offer graphics such as bar, line and pie charts, by simply entering a few simple commands. However such graphics programs are quick and easy to produce are usually not suitable for presentation graphics. Researcher may produce these charts on a plotter or dot-matrix printer or inkjet printer etc. Most of these software packages enable the researchers to edit and change the graphics while viewing them on display screen and then to make a hard copy or printed output. For example, researcher can input some data, make a bar chart, quickly change it into an exploded pie chart, and decide which one to use for his/her presentation.

The SPSS, GIS (Geographical Information System), DTM (Desk Top Mapping) etc. are available for mapping facilities. Use of computer to create and manage

geographic information and its attribute data, do various analyses and present the result on easy-to-read maps, is a fast developing technology today. These softwares are also useful in analysing and interpreting geographic data like land suitability/capability studies, census and other statistical area mapping of demographic trends and economic patterns.

Conclusion

Notwithstanding the merits and advantages outlined above, the scholars must however note that computer is after all a technological device or a tool to help and supplement human efforts at information input processing and analysis. Computers cannot replace scholars and scholarship. It may provide variety of devices to shortcut their time and energy, but computers cannot by themselves think. The commands have to be given by the scholars themselves. The computer cannot formulate a hypothesis or identify independent variables. These have to be thought of in advance by the scholars themselves.

This shows that computer is a supportive, supplementary device to aid scholarship in social science. In other words, it can complement and help the social science disciplines in deepening their understanding on variety of social themes and issues. This basic limitation of the computer is to be properly understood by everyone who is interested in learning about computers to develop his or her skills and capabilities. In the end we can only say that computer is a valuable tool in social sciences and with proper use and applications, the computers can certainly contribute to the enrichment of social sciences.

Value Based Education

(Contd. from page 4)

- A foundation course could be introduced in Indian Culture and sufficient attention be drawn not only to the spiritual, religious and moral components in Indian Culture but to all the other components like scientific, technological and intellectual components.
- A number of daily activities like prayer, meditation and bhajan may be arranged to help the development of spirituality in the student.
- Inter-religious faith meetings may be arranged for.
- All the extra curricular activities should be value based and directed towards the inculcation of values.
- A value based approach should be brought to bear not only on the teaching of languages but all subjects including all the sciences. For this purpose a well organised orientation course should be given to teachers of all the subjects so that the teachers themselves have a proper background relating to values and attitudes to the teaching-learning process. This can ensure a proper implementation

of the value education programmes.

In short the value education must be directed towards :

- Training the students in the art of living in total harmony with the environment.
- Inculcating in the students qualities of flexibility and adaptation to changing patterns of life and value systems.
- Giving a rational explanation of some of our inherited beliefs and values.
- Arousing a healthy social awareness.
- Instilling in the minds of the students a patriotic and nationalistic fervour.
- Making the young students develop a sense of purpose, direction and the determination to reach a goal.
- Preparing the young students to acquire the sense of world citizenship.

Refresher Course in English

The Academic Staff College of Himachal Pradesh University recently organised a three-week Refresher Course in English for the improvement of professional competence of college and university lecturers. In this programme 26 teachers from 13 universities participated.

Inaugurating the course, Prof. K.C. Malhotra, Vice-Chancellor, said that English was an important language which assisted in transferring knowledge from one society to another. It is a scientific language and it has helped the humanity to reach the present level of prosperity and scientific innovations. He, however, pointed out the problems which came in the way of making English understandable to the students belonging to different social strata. Though, Britishers brought English to India for facilitating their own communication with Indians, yet it developed as a medium of communicating technical and scientific knowledge and also sharing literature among different nations later on, he added.

The thrust area of the programme was "New Literatures". In addition to the thrust area, a number of other topics relating to college teaching, syllabus formulation and English language teaching were also dealt with in view of the needs of the participants. During the programme a special emphasis was laid down on learning by activity, interaction and role playing. The participants were made to involve in the programme at different levels i.e. conduct, management, recording of proceedings, presentations of reports, chairing the sessions and evaluating the performance of the

resource persons.

In his Valedictory Address Prof. Malhotra called upon the teachers to assume an additional role of providing leadership in our society in order to revive its glory. He said that the teachers had to come forward and save the society which was on the verge of disaster. "They have to strengthen the social fabric by inculcating values. Another challenge before the humanity today is 'save the planet'. The teachers need to be aware about the depletion and puncturing in the ozone layer due to different types of pollution on the earth. The cost of modern prosperity is surpassing its benefits. The teachers have to educate their students about the ecological hazards and to control these", he said.

International Hispanic Conference

The second international conference on "Hispanism in the Twentieth Century" was held at New Delhi recently. Thirty delegates from Spain, Peru, Argentina and other Spanish-speaking countries participated. The three-day conference was organized by the Centre of Spanish Studies of Jawaharlal Nehru University to bring the cultures of the Spanish-speaking world closer to India.

Hispanism — the cultural manifestations of the Spanish-speaking world in all its forms — has many things in common with India, experts say. "We reach at the concept of Hispanism after a long history first in Spain, then in America and even beyond — which is charac-

terized by a combination of encounters between different peoples, religions, languages and cultures. From this vast diversity springs the Hispanic concept as a living process that has never stopped and keeps yielding results," observed Mr Santiago Salas Collante, Ambassador of Spain in India.

He said, in the past, this pluralism had not helped in creating an awareness of these ways of being and thinking which can contribute so much to a world in transition. "We have witnessed — at least on a political level — the beginning of an awareness of this identity in the form of the historic meeting in Guadalajara, Mexico, of the heads of States and Governments from the Spanish and Portuguese-speaking republics of Latin America along with Spain and Portugal," he added.

Mr Collante also emphasized on the university of Hispanism. Hispanic studies not only thrive in Spanish-speaking countries, but are beginning to find new strength in every continent, he noted.

Mr Collante's thoughts were echoed by the Argentine Ambassador, Mr Victor E. Beauge. He said, "on my behalf, I would like to emphasize what I believe to be the most valuable aspect of Hispanism: its capacity to give identity and distinct personality to its people"

As far as India was concerned, the Spaniards were always interested in establishing a relationship. Mr Gregorio Salvador, a member of the Real Academia de la Lengua (Spain), said that Columbus wanted to come to India 500 years ago. The Spaniards' interest is also reflected in their school curriculum which includes texts on ancient Indian poets like Kalidasa and others.

Rabindranath Tagore has been one of the most widely-read litterateurs, said Mr Salvador. Tagore's relation with the great Argentine writer, Victoria Ocampo, is also a significant chapter in the relations between the two cultures.

Despite the dominance of the Anglo-Saxon language, Indians have also shown remarkable interest in the study of Spanish — a language, that Mr Salvador noted, has become synonymous with its culture.

India would do well to expand its cultural relations with the Spanish-speaking world. The cultural relations form the real base for a lasting friendship, suggested Mr Luis Beltran, a political scientist from Spain. Both people think alike and India could always count on the support of 22 countries forming the Spanish-speaking world in international fora. For Spain too, India is important as a decisive factor in Asian politics and international politics as an active member of Non-Aligned Movement, he noted.

The main concerns of the Spaniards are peace and cooperation as far as international politics is concerned, observed Mr Beltran adding, "that is also the concern of Indians".

Dial for Data : Chandigarh Terminal

As part of the nation-wide library hook-up programme of the National Informatics Centre (NIC), country's first general information service terminal (GISTNIC) was commissioned at the Central State Library in Chandigarh recently.

With the commissioning of the GISTNIC in Chandigarh, the link-up would cover the remaining 706 libraries approved by the Planning Commission. The vast ocean of

data to be available to the common man, research scholars and students will be free of cost.

This user-friendly service will offer online information on a variety of subjects at the touch of a button.

Speaking at the inaugural function Dr. N. Seshagiri, Director General, NIC, said what had been achieved at Chandigarh today was another step forward. Similar facilities would be extended to educational and other institutions. In fact already a list of 25 colleges and institutions, including universities and libraries in Punjab, are waiting extension of the GISTNIC facility.

Dr Seshagiri said already 1000 million bytes of information had been fed into GISTNIC and with 50 million bytes being cumulatively added or updated every month, the country would shortly have one of the most extensive "dial-for-data" services in the world.

In fact, the plans are to commission at least 100 similar information booths by March, 1992, with facility for the common man's needs and requirements. The information being fed into GISTNIC was collected from a variety of storehouses of knowledge. This was of immense help to the government, to the generalists and specialists alike, who can take quick decisions.

The NIC has covered almost the entire country and its services had been put to exacting use by the State Governments, particularly in this part of the country. He made a special mention of Punjab, where district collectors made constant use of the information service.

From the State headquarters the NIC was now being extended to the districts covering more areas of knowledge. Though all 450-odd districts in the country were already

covered under GISTNIC, the system was being made more exhaustive by adding information on 27 topics from data ranging from agriculture to transport, fisheries to health, labour to panchayats, roads and bridges to town planning and transport, employment to social forestry, etc.

The NIC, Dr Seshagiri said, would cover all 5,800 odd development blocks in the country by the end of 1993. To make it effective at the grassroots, a "project GRID" had been conceived. The word GRID stood for "grassroot information development". In fact, so vast was the expanse of the entire service network, that with a push of a button one could retrieve information from the USA as well. It had link-up with that country's national medical library. Within India, lot of feeding had been done in respect of chemistry and chemical engineering. World's top journals were now documented in the GISTNIC.

The Federation of Indian Chamber of Commerce and Industry — FICCI — had also shown keen interest on making use of the GISTNIC and other services. Consequently, arrangements for providing terminals for 550-odd associations and organisations of the industry were being extended the NIC services. Likewise, 220-odd research and development centres spread across the country were being hooked-up, he added. The NIC had already signed MoUs with the organisations concerned. The NICNET operates through communication satellite with nodes in all the 32 States and Union Territories capitals.

Dr Seshagiri said manned booths for free interaction with public in local language were also proposed while coin-operated will be installed in selected places. Audio-visual interface facility was also proposed.

Automatic Lens Design for Space Applications

The Applied Optics Laboratory of the Department of Physics of the Indian Institute of Technology, Madras, has taken up a project through ISRO-IIT (M) Space Technology Cell on two different aspects of Lens design problems.

(a) Thermal Analysis of Optical Systems

(b) Tolerance Analysis

Present day optical systems are expected to perform under a wide range of temperature environment. The effect of temperature, which needs to be studied can be classified under two categories; Effects produced by a uniform change of temperature and Effects produced when a differential temperature profile is imposed on the system.

In the case of uniform temperature change, there are changes in radial, element thickness, refractive indices and a change in the air space caused by the expansion of the mount material. The software developed proceeds by calculating the expected changes in various parameters listed above and generates the specifications of the modified system which can be analysed with normal ray trace and aberration evaluation programs.

In the case of thermal gradient, a radial temperature profile is assumed. The changes in thickness at various radial distances due to local changes in temperature are calculated and these are added to either of the lens surface. An aspheric profile is fitted using the least square curve fitting, which accurately described the changed surface profile. Similarly the refractive index changes at various small zones are calculated and curve fitting is done to ascertain the resultant GRIN profile. The above process is

repeated for each element of the system. The performance evaluation is done in this case by 'An aspheric GRIN ray trace program' developed at the Institute. It works for systems containing spherical and aspheric surface. It works for systems containing normal or GRIN components.

Besides this, a tolerance analysis program has also been developed to a fairly advanced stage. An exact ray trace program which can trace through systems containing spherical/aspheric/conic sections cylinders has been developed. Besides, the tilt and/or decenter can be given to one or more components in two orthogonal directions. The program internally generates a complete cone of rays from an on-axis or an off-axis object point located at finite conjugate or at infinity. This program can be used to calculate the geometrical optical transfer function (GOTF) for a centered, tilted and/or decentered optical system. The program can generate the parameter sensitivity tables linked to the change of MTF or any other performance characteristic while maintaining the overall focal length of the system. The sensitivity tables can be used for error budgeting, etc.

Bihar Education Deptt. Reorganised

The Bihar State Government is reported to have decided to trifurcate the Department of Education with a view to rationalise the functioning of the department.

The new department will be reconstituted as department of primary and secondary education, the department of higher education, and the department of culture.

The department of primary and secondary education will consist of primary and secondary education,

including adult education.

The department of higher education will consist of colleges, university education, training and research, which will include all academies and institutes.

The department of culture will consist of sports, cultural activities, youth welfare and activities, archaeology and museums.

AEB's Environmental Awards 1990

The Academy of Environmental Biology has announced the following awards of 1990, to be awarded at the inaugural function of the 12th Annual Session of the Academy on 23.12.1991 at A.P.S. University, Rewa (M.P.).

Dr. R.C. Dalela, Head, PG Deptt. of Zoology, D.A.V. College, Muzaffarnagar will be honoured with "AEB HONOURS" — a scholarly international award in recognition of his contributions to the cause of Science, Environment & Fish Toxicology. Award comprises a Gold Medal and a Citation.

Dr. S. Kumar, Regional Medical Research Centre, North East Region, Dibrugarh will be awarded the coveted "6th JEB Prize 1990" (YOUNG SCIENTIST AWARD) for his outstanding research in the field of Environment & Toxicology. The Prize comprises a Gold Medal, a Citation & Rs 1000.00 in cash.

Mr. V.P. Sharma, Researcher, Industrial Toxicology Research Centre (ITRC), Lucknow has won "BRPM Gold Medal 1990" for being first in the Young Researchers' Research presentation competition held during 11th Annual Session of the Academy.

Dr. (Mrs.) A. Visalakshi, Professor of Entomology, College of

Agriculture, Vellayani, has been selected for "Archana Gold Medal - 1990", an Environment and Toxicology AEB Annual Fellow Award. It comprises a Gold Medal and a Citation.

Miss Lali Thomas, Deptt. of Zoology, Dr. H.S. Gour University, Sagar, Mr. Y.G. Khillare, Deptt. of Zoology, Marathwada University, Aurangabad, Dr. V. Sivaram Krishnan, Deptt. of Zoology, S.K. University, Anantapur, and Dr. Ajay K. Awasthi, School of Environmental Biology, A.P.S. University, Rewa, will receive the "BPA Certificate - 1990"

The 12th Session of the Academy of Environmental Biology (AEB) will be held at the A.P.S. University Rewa on December 23-25, 1991. On this occasion a Symposium and BRPM Competition on "Environmental Management, Resource status, Conservation, Pollution monitoring and Abatement" are being planned. The main objectives of the Session are to review and analyse the situation and to take stock of the outstanding problems of the Environment besides providing the scientists and members of AEB a forum for exchange of information and updating current knowledge of Environmental Pollution and Toxicology. For further details please contact : Dr. Ajay K. Awasthi, Org. Secretary, School of Environmental Biology, A.P.S. University, Rewa-486 004 (M.P.)

M.Tech. Course in Petroleum Refining and Petrochemicals

The Madras Refineries Limited, in collaboration with the Anna University proposes to start an M.Tech course in petroleum refining and petrochemicals from January next year. This was

revealed by Dr. M. Anandakrishnan, Vice-Chancellor and refineries Chairman Mr. H. Krishnamurthy in Madras recently. They said that the three semester task oriented course had been designed by the user industry.

According to them the course content has been designed by the petroleum industry and the Madras refineries as well as its research and development (laboratories) centre would be available to the students for in plant studies. The course, they said, had been designed to absorb developments in the industry taking place from time to time.

The refineries had taken the initiative to start the course in view of the growing requirements of refinery engineers with the refining capacity reaching 90 million tonnes by the turn of the century, Mr. Krishnamurthy said.

Maritime Education and Training

The Central Government is reported to have constituted a 16-member expert committee, headed by Dr C. P. Srivastava, of the National Defence Academy (NDA), for reviewing the maritime education and training.

The Committee on Maritime Education and Training has been asked to recommend the appropriate changes required in the institutional framework for imparting training including the feasibility of bringing the four training institutes under a university-type structure.

It would study the feasibility of private sector participation and joint sector projects for promoting training institutions for marine engineers. It would also consider the possibility of starting a formal

course at the Maritime Training Institute in Bombay owned by the public sector undertaking, the Shipping Corporation of India.

AnnaVarsity to Publish S & T Books in Tamil

Inaugurating the computer training programme for rural school children, organised by the Anna University and Tamil Nadu Foundation Inc of the USA, Mr. R.M. Veerappan, Minister for Education, said recently that the university should take steps to collect and publish science and technology books in Tamil and set up a coordination committee to advise the State Government in this regard. The medium of computer education should not be confined to English and attempts should be made to teach the subject in Tamil, he added. Mother tongue should be the medium of instruction and it alone could impart education that provoked thinking instead of promoting memorising of lessons.

The Minister said that the State Government was considering ways and means to reduce the administrative burden of Vice-Chancellors so that they could concentrate on academic affairs. He called upon the educationists to evolve methods to reduce the enormous gap between urban and rural education. Appreciating the university for taking up innovative projects, he urged other universities and regional engineering colleges to follow suit.

Dr. M. Anandakrishnan, Vice-Chancellor, said the present education system was fragmented into circles which should be linked to develop an integrated system to effectively serve the country. Radical experimentation was needed, he added.

HP to Encourage Private Educational Institutions

Mr. Shanta Kumar, Himachal Pradesh Chief Minister, said that the State Government was considering a plan to encourage private educational organizations by providing them a number of incentives to set up educational institutions in various parts of the State. He said this was being done because it would not be possible for the Government to open more educational institutions within its limited resources. He was speaking at a reception organized by the DAV College managing committee and Arya Pratinidhi Sabha held recently in New Delhi. He said that private institutions should come forward to supplement Government efforts in spreading the light of education.

Sheikh-Ul-Alam and Our Society

A two day seminar on "Sheikh-Ul-Alam and Our Society" was recently organised at the University of Kashmir, Srinagar. Dr. S M Afzal Qadri, the Dean, Students Welfare in his welcome address said that in the present crisis when the whole world was at the verge of war the teachings of Sheikh Noor-U-Din will give a solace to mankind. He outlined the contribution made by Hazrat Sheikh, a great saint and poet of Kashmir, for the betterment of the Kashmiri Society. He said that the Hazrat Sheikh's teachings are as important today as they were in his life time.

Prof. Hamidi Kashmiri, who inaugurated the seminar, outlined the life sketch of Hazrat Sheikh. He said that Sheikh Noor-U-Din was not only a saint, but a preacher, and protector of human rights. His teachings will act as torch bearer for our youth. At the time when all

other philosophers have failed only the teachings of Hazrat Sheikh will help mankind to live in peace.

The keynote address was presented by the veteran Kashmiri Poet, Prof. Rehman Rahi. The seminar was held in three sessions at which papers on the life and works of Sheikh Noor-U-Din were presented by the participants.

The participants were of the unanimous opinion that there was a need to make an indepth study of the life and works of "Sheikh-Ul-Alam". It was unanimously resolved that the University should establish an Institute in the name of Hazrat Sheikh Noor-U-Din as a tribute to this great Kashmiri Saint and Poet.

Library Automation

The Nagarjuna University Library, has computerised its Catalogue card production. The data entry operator will input the data for the main card only. The programme will automatically create and print the required number of various types of cards— author, title and subject. This Automation will enhance the clarity and neatness of the cards; minimise the typographical errors; lessen the work load of the typists; curtail the tedious process of verification of typed cards with the manuscript slips; and release the time of professional staff to catalogue and classify more num-

ber of books.

Using this database, Nagarjuna University Library is developing a programme to prepare and issue monthly lists of current acquisitions for the benefit of readers.

PG Diploma in Tourism and Travel Management

Jiwaji University proposes to start one-year postgraduate Diploma in Tourism and Travel Management Studies from the current academic session as a professional course. The Union Ministry of Civil Aviation and Tourism, would collaborate in running this professional course which would be elevated upto Master's Degree Course. Thirty candidates after having been selected on an All India level basis have been admitted to the course. The university also proposes to start other professional courses like Journalism etc, in the near future.

Rly Varsity for Karnataka

The Karnataka State proposes to have a Railway University by the next academic year, to coach candidates for the various cadres of the Railways. This is reported to have been revealed by the State Education Minister M. Veerappa Moily on having an autonomous railway institute in the State.

News from Abroad

Intercultural Coursework at Colleges & Universities

The United States Educational Foundation in India invites applications for Summer Workshop for the Development of Intercultural Coursework at Colleges and Universities

to be organized by the Institute of Culture and Communication East-West Center, Honolulu, Hawaii from July 15-24, 1992. The workshop is intended for college and university

faculty who wish to develop courses in intercultural and international topics. Participants will examine possible texts, interact with East-West Center staff familiar with a variety of courses, discuss issues with the authors of texts currently used in intercultural courses, hear presentation on topics that are treated in intercultural course offering, and examine course outlines from various colleges. Upon returning to their home institutions, participants will prepare their own outlines and will introduce the courses into their colleges' curricula. The general areas within which courses can be developed, given the experience of the East-West Center staff involved in the program, are the behavioural sciences, social sciences, language and culture, and international management. More specifically, the staff has had experience with the following types of courses: Cross-cultural psychology, Cross-cultural research methods, Intercultural communication, Cross-cultural orientation programs, International and comparative management, Human resources management: working with diversity, English as an international language, Language and culture, English for cross-cultural communication, Combining TESOL with cross-cultural communication and adjustment, Combining sign language interpretation for the deaf and intercultural communication.

The last date for receipt of applications at USEFI, New Delhi is April 10, 1992. Applications that are incomplete, late, or not sent through proper channel, or those which do not guarantee self/sponsored funding for the entire workshop and travel expenses will not be entertained.

For more information with regard to participation or application blanks, please write to : Program Officer, U.S. Educational Foundation in India, 'Fulbright House', 12 Hailey Road, New Delhi

110 001

The Internationalization of Scholarly Publishing

The International Association of Scholarly Publishers, (IASP), in collaboration with the Asian Association of Scholarly Publishers (AASP) will organise a one-day seminar on The Internationalization of Scholarly Publishing in New Delhi on February 1, 1992 on the occasion of the New Delhi World Book fair.

The programme includes speakers from Europe, Asia and the Americas, who will address the common theme of internationaliza-

tion in publishing from their own points of view as publishers, editors, or media researchers. They will report on past experiences, explore future possibilities and consider alternative strategies for scholarly publishers seeking a place in the international arena. They will also discuss the potential contribution of international organizations such as IASP and AASP in this context.

Further details regarding participation can be had from Peter John Givler, Secretary-General, International Association of Scholarly Publishers, Ohio State University Press, 1070 Carmack Rd., Columbus OH 43210, USA.

Association of Indian Universities

AIU House, 16 Kotla Marg, New Delhi 110002

Applications on prescribed form available from the Association of Indian Universities on payment of Rs. 2/- (Rs. 5/- if required by post) are invited for the following posts.

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- Master's degree in Arts/Science or Commerce with high second class.
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- Five years experience of working in a university level library in documentation.

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Working knowledge of computers.

SC/ST candidate would be given preference. The post carry usual allowances generally at the Central Govt. rates.

The Association reserves the right not to fill up the vacancy advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.

The last date for receipt of applications is 20.12.91. Applications received after the last date or without complete information may not be entertained.

Three Great Intellectuals A Comparative Biography

S. Parthasarathy*

Girja Kumar. Ranganathan, Dewey and C.V. Raman: A Study in the Arrogance of Intellectual Power. New Delhi, Har-Anand Publications, 1991. Pp. 147, Rs. 150.

Introduction

A biography of Ranganathan is long overdue. His contributions spread over nearly fifty years laid the foundation for a new line of approach drawn from the rich cultural and spiritual traditions of India. The Five Laws of Library Science provide a conceptual framework for building up information systems and services in a changing and dynamic environment. They are simple statements pregnant with meaning. Based on these Laws, Ranganathan developed a number of new and sophisticated tools and techniques for organising efficient information systems and services. His contributions are recognised as outstanding, internationally. All his works are the results of applying scientific method. He brought in a fresh air and a new approach. He was a pioneer and an innovator.

Ranganathan's birth centenary celebrations are on. Anything about him will be topical. Ranganathan passed away in 1972. There are some short biographical articles on him. He has published

his reminiscences, "A Librarian Looks Back", covering a short period, in the *Herald of Library Science*. However, we do not have a fulfilled biography of Ranganathan.

Girja Kumar's book is an attempt to fill this gap. He has the necessary credentials. He knew Ranganathan personally for twenty-five years, as his teacher, benefactor and professional guide. He has been writing a number of books on professional subjects. He has also been collecting information on Ranganathan from published sources, through correspondence, by interviewing people, and by visiting institutions and places connected with him. It is natural to expect from him a good biography of Ranganathan.

Dewey and Raman have been included in the book to give credence to his thesis indicated by the subtitle: "A study in the arrogance of intellectual power". The author has no personal knowledge of these two intellectuals. Information about them have been picked up from a few published books. The addition of these two names make the title catchy. The three names — Ranganathan, Dewey and C.V. Raman — recall the titles of some action-packed Indian movies. Omitting the ini-

tials of C.V. Raman would make the title elegant.

Models Used

For writing this book, George Paintal's *Proust* is taken as a model, as it provides psychological insights "in which childhood, illness, eccentricities of behaviour and motivation are not used clinically but aesthetically; in which his life is not a scenario of sickness, overcompensation, mother deprivation or fetishism but the unfolding of a man using his qualities to achieve his artistic life, a life indistinguishable from its vision". How far the author has succeeded in following this model, is a relevant question. It is stated that "the intellectual calibre of Ranganathan was not of the same order as of Proust, the literary giant". We do not have a yardstick for measuring intellectual calibre.

The common characteristics of geniuses enumerated by Erik Erikson are used as another model for assessing the three intellectuals:

1. A secret foreboding that curse lies upon them.
2. A tie to the father which makes open rebellion impossible.
3. A sense of being chosen and carrying a superior destiny.
4. A feeling of weakness and shyness and unworthiness.
5. A precocious conscience in childhood.
6. An early development of ultimate concerns.
7. A brief attempt to cast off their yoke.

*Former Director, Indian National Scientific Documentation Centre (INSDOC), 25 Peyalwar Koil Street, Triplicane, Madras-600 005.

8. A final settling into the conviction that they have a responsibility for a segment of mankind.

The author states that the Erikson typology seems to pass the grade in most of the instances and wherever it does not, it is basically due to inadequate information. According to Paintal's model, these are negative qualities not to be used clinically but aesthetically.

Contents

The Preface, which is not listed in the contents page, starts with the life of Ranganathan and explains the concepts of double personalities, creative intellection, ideology as a basis for surveying the life of Ranganathan and others. Types of biographies and qualities of a good biography are explained.

Chapter 1 deals with Raman, Ranganathan and Dewey as 'chosen people'. The uniting factor between them is stated as the 'arrogance of intellectual power'. Their common characteristics are identified as follows:

1. They were double personalities.
2. They invariably thought that morality was on their side.
3. With God and morality on their side, they used all weapons at their command to achieve their objective.
4. Their common weakness was their inability to see the other side.
5. They had the communal tendency to get into difficulties.
6. They were outstanding personalities in a state of intellectual orgasm, reaching the peaks perpetually.

7. They were work alcoholics.
8. They were high-minded in their personal lives and essentially day-dreamers.
9. They were happiest with their wards, the students, because of their natural spontaneity. The reason must be their feeling of insecurity.
10. At heart they were like grown up children, smiling, petulant, difficult, intolerant and charming in the same breath.
11. The negative qualities are: short-tempered, intolerant of dissidence, impatient and exhibitionist for all the world to notice them, highly egoistic, Brahminic disdain for the rest of the populace, intense beings and individualists, cannot stand their peers, turned into one track mind as they grow old, impatient and intolerant of new ideas and younger personalities with strong straits, closed system with no entry points, victims of change and circumstances.

These characteristics appear more as sweeping statements. They are not adequately explained and illustrated from the lives of Raman, Ranganathan and Dewey. In some instances, the conclusions drawn, particularly in the case of Raman, are outside the domain of the author. This affects the credibility of the book. Some of the terms used are harsh and unnecessary. The bio-data of these persons are given as an Appendix.

In Chapter 2, the play of aesthetics and order in their lives is illustrated. An account of the role of their spouses is given. A note on

spiritual experience by Ranganathan is appended.

In Chapter 3, they are considered as empire builders, organisation men, strong-willed individuals who liked to have their way all the time, outstanding men of rare vintage, who could never come to terms with a streak of their own, monumental failures in manning men and institutions.

Chapter 4 deals with their creative years at a young age and mentions some of the important works brought out by them.

Chapter 5 deals with their failures, as a necessary corollary of their successes. The trials and tribulations in their lives are detailed here and continued in the next Chapter.

"Ranganathan as a Historical Being" is given as a supplement. This is based on papers presented by some participants at the International Conference on the Philosophy of Ranganathan held in New Delhi in 1986.

General Remarks

Ranganathan, Dewey and Raman were great innovators and made a great impact on the development of their subject fields. In their life they were great achievers. They had met all their challenges with determination and dignity. The ups and downs in their lives, the obstacles they had to face, only hardened their efforts to achieve more. Their homely life was congenial. Without such an atmosphere, they could not have achieved what they did. Bitterness or emotional strains were occasional and passing. These did not psychoanalyse them, and blow them up as a major drawback, may be attractive but not appropriate.

To present the achievements and

foibles of three intellectual giants in about 150 pages requires courage. But the book is mainly on Ranganathan. Dewey and Raman have been introduced for comparison.

After reading the book, one does to get a total picture of the personalities of Raman, Ranganathan and Dewey. The chapters look like independent essays, put together. The presentations is fragmentary.

The style is journalistic. The chapter headings and sub-headings are catchy, rather than connotative. There are some mistakes in the book. All of them are not due to printer's devil. The index to the book is a travesty. We cannot locate, using the index, any entry in the book. Perhaps this was prepared for another format and just reproduced here without any modification.

The author has taken much pains to collect useful information. But the approach and the presentation fall short of expectation. He has stated that "the present work is a preliminary exercise in writing a definitive biography of S.R. Ranganathan". We look forward to getting a good biography of Ranganathan from the author.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
December 9-26, 1991	Winter School on use of Statistical Software	To introduce college and university teachers to computer-oriented statistical methods and to train them in the use of statistical software packages	Indian Statistical Institute, Calcutta	The Course Director, Winter School on use of Statistical Software, Computer Science Unit, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta-700 035
December 14-16, 1991	International Conference on Man & Environment	To discuss issues concerning the future of man and preservation of the unique planet earth	Motilal Nehru Regional Engineering College, Allahabad	Dr. R.K. Srivastava, Organising Secretary ICOMEN - 91, Department of Civil Engineering, Motilal Nehru Regional Engineering College, Allahabad - 211004
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
August 26-28, 1992	Second International ISKO Conference on Cognitive Paradigms in Knowledge Organisation	To provide a forum for scholars working in the field of knowledge organisation	Madras Library Association in collaboration with Sarada Ranganathan Endowment for Library Science and University of Madras	Mr. S. N. Kumar Conference Secretariat, 5, Sivaganga Road, Madras-600 034
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair - 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

REFERENCE AND RESEARCH TOOLS

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

Invaluable reference for those seeking to register for a Doctoral Programme

The bibliography is classified by subjects and covers all the disciplines in which a doctoral degree is awarded by the Indian Universities. Each entry gives complete bibliographical details, viz., name of the research scholars, title of the thesis, university/institute where the research was conducted, years of registration and award of degree, availability note – whether the thesis is available in the university library/department concerned/university office and the name and complete address of the guide/supervisor.

Comprehensive and exhaustive as the bibliography is, it not only reports the research being conducted at the university centres, but also includes research work done at the institutions of national importance, like the IITs, institutions deemed to be universities, like the Indian School of Mines, CSIR Laboratories as also the research establishments connected with ICAR and ICMR.

The bibliography is indeed a measure of the research output of the country.

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AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on higher education. Among the topics prominently represented are educational sociology, educational planning, educational administration, teaching & teachers' training, examinations, economics of education and country studies. Developing fields of adult education, continuing education and distance education, and educational technology are also well stocked.

The library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of higher education. Files of annual reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to the AIU Library'.

The library receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly our column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The library is steadily building up a collection of audio and video cassettes on matters educational and maintains a well appointed Audio-Visual Room equipped with a double deck audio cassette recorder, a VCR and a colour TV monitor, and an overhead projector.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees in Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Sangita Rani. **Human resources development needs as depicted by the survey of automation of scientific and technical libraries in India.** Jammu. Dr I V Malhan, Department of Library Science, University of Jammu, Jammu.

Psychology

1. Shams, Giti Khanom. **Biological rythms and performance.** BHU. Prof B S Gupta, Department of Psychology, Banaras Hindu University, Varanasi.

2. Singh, Satyendra Narayan. **A study of occupational stress, mental health relationship as moderated by personality characteristics.** BHU. Dr A K Srivastava, Reader, Department of Psychology, Banaras Hindu University, Varanasi.

Sociology

1. Jeetendra Prasad. **Economic condition of coal mine workers in Bell, Dhanbad, Bihar.** BHU. Dr A K Kaul, Lecturer, Department of Sociology, Banaras Hindu University, Varanasi.

2. Premlata Devi. **Vyavasayik shiksha ke vadhae.** BHU. Dr Manju Biswas, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

3. Rai, Arvind Kumar. **Bharatiya samaj ke sanrachanatmak**

parivartan mein punrajagan andolan kee bhumika. BHU. Dr P N Pandey, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

4. Rai, Sunil Kumar. **Audyogik sambandha.** BHU. Dr Shashi Agrawal, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

5. Rajesh Kumar. **Railway mein karyarata engine parichalakon kee swasthya sambadhit samasyayen.** BHU. Dr Manju Biswas, Lecturer, Department of Sociology, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

6. Shirin Naz. **Sempradayavad ka samajik adhar.** BHU. Dr Mohd Salim, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

7. Singh, Manju. **Singrauli kee shramik mahilaon kee vyavsayik evam samajik gatisheelata.** BHU. Dr Arvind Joshi, Lecturer, Department of Sociology, Banaras Hindu University, Varanasi.

8. Singh, Narendra Narain. **Krishi artha vyavastha aur gamin vikas kee samasyayen.** BHU. Dr Vishnu Gopal, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

Political Science

1. Adhikari, Niru. **Democratic movement and Constitutional development of Nepal.** BHU. Dr P D Kaushik, Prof, Department

of Political Science, Banaras Hindu University, Varanasi.

2. Mishra, Hemlata. *Bharat evam nishastrikaram: Dakshin Asia ke vishesh sandarbh mein*. BHU. Dr P Upadhyay, Lecturer, Department of Political Science, Banaras Hindu University, Varanasi.

3. Mishra, Seema. *Bharat-America sambandh: Sheet yuddh ke vishesh sandarbh mein*. BHU. Dr P Upadhyay, Lecturer, Department of Political Science, Banaras Hindu University Varanasi.

Economics

1. Manjeet Singh. *Role of indirect taxes in India's economic crises, in retrospect*. BHU. Prof U K Mehra, Department of Economics, Banaras Hindu University, Varanasi.

2. Tiwari, Brajesh. *Economics of swadeshi*. BHU. Dr K L Kedia, Lecturer, Department of Economics, Banaras Hindu University, Varanasi.

Education

1. Arora, Ranjana. *A study on relationship between value profile and the nature of scientific knowledge among university teachers and students*. BHU. Dr P N Singh, Lecturer, Department of Education, Banaras Hindu University, Varanasi.

2. Cheriyan, Varghese K. *Influence of teacher competence on student achievement in Mathematics at degree level*. Kerala. Dr Mercy Abraham, Prof, Department of Education, University of Kerala, Kariavattom.

3. George, Thomas Thanickel. *A critical appraisal of values in modern sports*. Kerala. Dr S S Hasrani, Lecturer, Lakshmi Bai National College of Physical Education, University of Kerala, Thiruvananthapuram.

4. Gupta, Narendra Kumar. *A survey of selected psychological variables of volley ball players from the rural areas of U P*. BHU. Dr Ram Bali Singh, Lecturer, Department of Physical Education, Banaras Hindu University, Varanasi.

5. Jubaira Beevi, Y. *A study of the difficulties experienced by secondary school pupils of Kerala in learning Chemistry*. Kerala. Dr P Viswanathan Nair, Lecturer, Department of Education, University of Kerala, Thycad, Thiruvananthapuram.

6. Kaushik, Prabhat Kumar. *Effect of audio-visual motivational and other strategies in continuing education with special reference to SC/ST women illiterates*. BHU. Dr G C Bhattacharya, Department of Education, Banaras Hindu University, Varanasi.

7. Kushawaha, Sahab Singh. *Student's satisfaction with management systems of distance education in relation to their academic achievement*. BHU. Dr H C S Rathore, Department of Education, Banaras Hindu University, Varanasi.

8. Man Singh. *A study of women as beneficiaries of distance education in India*. BHU. Dr H C S Rathore, Department of Education, Banaras Hindu University, Varanasi.

9. Maurya, Shitala Prasad. *Yog ke sharirik praksh ka atilhasik vrtas: Sindhu Ghati Sahyata se 20vi shatabdi tak*. BHU. Dr Ram Bali Singh, Lecturer, Department of Physical Education, Banaras Hindu University, Varanasi.

10. Mishra, Arvind. *Khelon ke kshetra mein Bharat hueee nashit davan ke sevan ke pravriti*. BHU. Dr S S Sharma, Reader and Head, Department of Physical Education, Banaras Hindu University, Varanasi.

11. Mishra, Sharad Chandra. *Khelon ke vikas mein patra-patrikayon ka yogdan*. BHU. Dr S S Sharma, Reader and Head, Department of Physical Education, Banaras Hindu University, Varanasi.

12. Mohan, N. *A comparative study of selected physiological*

variables and health related physical fitness of sports and non-sports high school boys at different altitudes. Kerala. Dr J Samuel Johnson, Alanchery House, Chathannoor.

13. Pathak, Manoj Kumar. *Madhya yug mein Uttar Bhartiya sharirik shiksha ka swarup*. BHU. Dr Ram Bali Singh, Lecturer, Department of Physical Education, Banaras Hindu University, Varanasi.

14. Prasad, Yoginder. *A study of facilities organization and administration of physical education and sports in Himachal Pradesh University*. Panjab. Dr S N Sharma, Department of Physical Education, Panjab University, Chandigarh.

15. Pritpal Kaur. *Success in teaching as related to personality types attitude towards teaching and achievement motivation among secondary school teachers*. Panjab. Prof Harish Sharma, Department of Education, Panjab University, Chandigarh and Dr (Mrs) Tejinder Malhotra, Principal, Govt College of Education, Chandigarh.

16. Rai, Vijay Shanker. *Physiological profiles of volley ball players with special reference to three level competition*. BHU. Dr S S Sharma, Reader and Head, Department of Physical Education, Banaras Hindu University, Varanasi.

17. Sabitha, T. *Development of models for teaching the mentally retarded children*. Kerala. Dr Mercy Abraham, Prof, Department of Education, University of Kerala, Thycad, Thiruvananthapuram.

18. Sharma, Chanchal. *The effect of selected yogic practices on mental health*. Panjab. Prof (Miss) J Bhullar, Department of Physical Education, Panjab University, Chandigarh.

19. Sharma, Surinder Kumar. *Dependence of performance of an athlete on gravitational force, frictional forces and projectile motion*. Panjab. Dr Harnam Singh, Department of Physical Education, Panjab University, Chandigarh and Dr S N Sharma, Department of Physical Education, Panjab University, Chandigarh.

20. Singh, Surendra Prasad. *Educational ideas of existentialist writers*. BHU. Dr T Singh, Department of Education, Banaras Hindu University, Varanasi.

21. Thakur, Rattan Singh. *Development of education in Himachal Pradesh in the post independence era upto 1991: Policies, planning and implementation*. Panjab. Dr (Mrs) I P Sharma, Department of Education, Panjab University, Chandigarh and Dr Rajendra Kaur, Reader, Department of Education, Himachal Pradesh University, Shimla.

22. Yadav, Vinod Kumar. *A study of decision making of Principals*. BHU. Dr Asha Pandey, Reader, Department of Education, Banaras Hindu University, Varanasi.

23. Yesudasi, P. *A comparative study of certain personality variables of high and low process achievers in science*. Kerala. Dr P Viswanathan Nair, Lecturer, Department of Education, University of Kerala, Thycad, Thiruvananthapuram.

Commerce

1. Bhosale, Sudhir Ramchandra. *Manpower planning through vocationalisation*. Shivaji. Dr V V Khanzode, Chharpati Shahu Central Institute of Business Education and Research, Kolhapur.

2. Dewanand Singh. *Pumps and fans Industries in U P: A study of their marketing practices and policies*. BHU. Dr B Jha, Lecturer, Department of Commerce, Banaras Hindu University, Varanasi.

Home Science

1. Aggarwal, Meenakshi. *Life of women in a selected slum of Delhi*. Delhi. Dr Geeta Katarya.

2. Chadha, Ravinder. *Beta-Carotene content of locally available*

vegetables and fruits using high pressure liquid chromatography. Delhi. Dr (Ms) Sushma Sharma.

3. Jain, Archana. *Samish aur niramish ahar ka bachchon, 4-6 varsh, ke sanvegatmak vikas per prabhav*. HS Gour. Dr P K Rai, Lecturer, Department of Home Science, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

4. Joshi, Sudha. *Auraton ka vikas*. BHU. Dr (Miss) Indira Vishnoi, Department of Home Science, Banaras Hindu University, Varanasi.

5. Pandey, Vidhu. *Vibhinna aye varga ke mahilayon ke sag-sabji aur sajavati paudhon se sambandhit unkee ruchi, gyan evam apnaye jane ka tulnatamak adhyayan*, Varanasi. BHU. Dr (Smt) P Srivastava, Department of Home Science, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

6. Singh, Anju. *Reading problems of young girls in some of the rural and urban areas of Varanasi*. BHU. Dr (Smt) Nalini Sant, Reader, Department of Home Science, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

7. Singh, Mrinalini. *Nutrition and dietetics growth and development of children*. BHU. Dr (Smt) Archana Chakravarty, Lecturer, Department of Home Science, Banaras Hindu University, Varanasi.

8. Tripathi, Suman. *Role of housewives of Varanasi City in controlling the situation of inflation: A guideline program to educate them for better management*. BHU. Dr (Mrs) N Sant, Reader, Department of Home Science, Banaras Hindu University, Varanasi.

Management

1. Dinesh Kumar. *Financial management of Cargo Terminals in India: A critical evaluation of policy and practices*. BHU. Prof R M Srivastava, Department of Management Studies, Banaras Hindu University, Varanasi.

HUMANITIES

Philosophy

1. Agrawal, Shipra. *Sankhya tatha vedanta mein srishti vichar*. BHU. Dr Urmila Chaturvedi, Reader, Department of Philosophy, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

2. Archana. *Sankhya darsana mein vikasevada*. BHU. Prof R R Pandey, Department of Philosophy, Banaras Hindu University, Varanasi.

3. Krishnanakutty, G. *Concept of self in Sri Aurobindo's philosophy: A study*. Kerala. Dr M Sukumaran, Lecturer, Department of Philosophy, University College, University of Kerala Thiruvananthapuram.

4. Mishra, Manorama. *Manusmriti ka samajdarshan*. BHU. Dr D B Chaubey.

5. Mishra, Sunita. *Sankhya aur advaita vedant mein jeewan mukti vichar*. BHU. Dr Kripa Shanker Ojha, Department of Philosophy, Banaras Hindu University, Varanasi.

6. Pandey, Pradeep Kumar. *Sri Aurobindo ke Gita dristi*. BHU. Dr U C Dubey, Department of Philosophy, Banaras Hindu University, Varanasi.

7. Sehgal, Poonam. *Samagra anubhuti: Radha Krishan ke vishishtha sandarbha mein*. BHU. Dr D A Gangadhar, Department of Philosophy, Banaras Hindu University, Varanasi.

8. Singh, Anil Kumar. *Prachin nyaya aur Bauddha nyaya ka sameekshatmak adhyayan*. BHU. Prof B N Singh, Department of Philosophy, Banaras Hindu University, Varanasi.

9. Singh, Kaushal Kumar. *Baudha Pramana Pariksha: Vachaspati Mishra ke alok mein*. BHU. Prof B N Singh, Department of Philosophy, Banaras Hindu University, Varanasi.

10. Singh, Nisha. *Dighanikaya ke Brahmajalasutra ka darshnika adhyayan*. BHU. Prof B N Singh, Department of Philosophy, Banaras Hindu University, Varanasi.

11. Singh, Poonam. *The concept of soul in Kant's philosophy in the light of Gita*. BHU. Dr Munni Agrawal, Department of Philosophy, Banaras Hindu University, Varanasi.

12. Singh, Rajeshwar. *Sankhya kari ka Natharavrtti ka darshnika anusheelan*. BHU. Dr U C Dubey, Department of Philosophy, Banaras Hindu University, Varanasi.

13. Srivastava, Rajeev. *Advaita vedanta mein pratyaksh prerna*. BHU. Dr S Vijaya Kumar, Department of Philosophy, Banaras Hindu University, Varanasi.

Religion

1. Anju Kumari. *Adhunik Bharatiya dharmik andolan mein Swami Dayanand ka avadan: Darshanik anusheelan*. BHU. Dr D A Gangadhar, Department of Philosophy, Banaras Hindu University, Varanasi.

2. Dutta, Anjana. *Swami Vivekananda aur Hindu dharma*. BHU. Prof R R Pandey, Department of Philosophy, Banaras Hindu University, Varanasi.

3. Rai, Vinod Kumar. *Jaina Dharma mein sadachar*. BHU. Dr D A Gangadhar, Department of Philosophy, Banaras Hindu University, Varanasi.

4. Sammapanno, Phramaha Somjin. *Thervad- Mahayan param parayam bodhi-sattar vimansha*. BHU. Dr H S Shukla, Department of Pali and Buddhist Studies, Banaras Hindu University, Varanasi.

5. Singh, Chhaya Rani. *Swami Vivekananda ke dharma ke avadharana*. BHU. Dr D A Gangadhar, Department of Philosophy, Banaras Hindu University, Varanasi.

Fine Arts

1. Tripathi, Dev Mani. *Bharatiya katha vastu kala: Uttar Pradesh parvatiya anchal evam Himachal ke vishesh sandarbha mein*. BHU. Prof R Dasgupta, Department of History of Art, Banaras Hindu University, Varanasi.

Music

1. Dogra, Binu. *Sangeet ratnakar mein varnit alankaron ka vivechan evam varman sangeet mein unki saundryatmak upadeyata*. Panjab. Dr Pankaj Mala Sharma, H No 3306, Sector 15-D, Chandigarh.

2. Gopal Krishan. *Shimla Zila ke lok-sangeet ka vishleshnatmak adhyayan*. IIP. Dr C L Verma, Department of Performing Arts, Himachal Pradesh University, Shimla.

Language & Literature

English

1. Kanva, Suchita. *Novel as fact, fact as fiction: A study of new journalism with special reference to the works of Tom Wolfe and Norman Mailer*. Panjab. Prof M L Raina, Department of English, Panjab University, Chandigarh.

Russian

1. Rajasree, A R. *Short stories of Anton Chekov and Karoor Neelakanta Pillai: A comparative approach*. Kerala. Dr K Govindan Nair, Department of Russian, University of Kerala, Thiruvananthapuram.

Sanskrit

1. Das, Satya Swaroop. *Virodhmulalanlehasamalochanatmakam- adhyayanam*. BHU. Dr C M Dwivedi, Lecturer, Department of Sanskrit, Banaras Hindu University, Varanasi.

ment of Sahitya, Banaras Hindu University, Varanasi.

2. Dixit, Kamlesh Kumar. *Siddhant Karmudyaskarak prakarana balmanoramatatwa Bodhinayostulanatmakadhyayanam*. BHU. Dr Amal Shastri, Department of Vyakaran, Banaras Hindu University, Varanasi.

3. Dubey, Shri Krishan. *Grahanamudayasti sameekshatmakam*. BHU. Prof Ram Chander Pandey, Department of Jyotish, Banaras Hindu University, Varanasi.

4. Jha, Dhruva Kant. *Vyaptipanchaktatwaaloksameekshatmakam sampadanam*. BHU. Dr G Anjanaya Shastri, Department of Vedic Darshan, Banaras Hindu University, Varanasi.

5. Pandey, Shri Ram. *Paranandapuranasya sameekshatmak sampadanam*. BHU. Dr Rama Shanker Tripathi, Department of Vedic Darshan, Banaras Hindu University, Varanasi.

6. Pandey, Subhash Chander. *Aryuday sameekasha*. BHU. Prof Ram Chander Pandey, Department of Jyotish, Banaras Hindu University, Varanasi.

7. Pandey, Subhash Kumar. *Bhavdhwani-parisheelanam*. BHU. Dr Shiv Dutt Sharma Chaturvedi, Reader, Department of Sahitya, Banaras Hindu University, Varanasi.

8. Shabana Iqbal. *Sankhyasutra ke anirudhavrutti ka sameekshatmak adhyayan*. BHU. Dr Uma Joshi, Lecturer, Department of Sanskrit, Banaras Hindu University, Varanasi.

9. Shukla, A Prasad. *Anirudhavrutti sameekshatmakamadhyayanam*. BHU. Dr K E Dharnidharan, Department of Vedic Darshan, Banaras Hindu University, Varanasi.

10. Singh, Bankey Bihari. *Rigveda ke Pancham Mandal ka sameekshatmak adhyayan*. BHU. Dr U P Singh, Department of Sanskrit, Banaras Hindu University, Varanasi.

11. Singh, Munna. *Rigveda ke Chaturtha Mandal ka darshanik adhyayan*. BHU. Dr U P Singh, Department of Sanskrit, Banaras Hindu University, Varanasi.

Punjabi

1. Harjus Kaur. *Gurmat sangeet vich Bharti shastri sangeet de vibhin tat*. Panjab. Dr Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh and Dr Gurnam Singh, Lecturer, Department of Punjabi, Punjabi University, Patiala.

Hindi

1. Chaturvedi, Kusum. *Acharya Shukla ka kavya*. BHU. Dr Srinivas Pandey, Department of Hindi, Banaras Hindu University, Varanasi.

2. Dhiman, Bimla. *Guru Govind Singh krit Krishnavatar: Ek alochnatmak adhyayan*. HP. Dr Kuldeep Chand Agnihotri. B B N College, Chakmoh, Distt Hamirpur.

3. Guha, Madhumita. *Bhishma Sahani ke katha sahitya mein Premchand parampara ke tatva*. BHU. Dr Kashi Nath Singh, Reader, Department of Hindi, Banaras Hindu University, Varanasi.

4. Gupta, Dinesh Prasad. *Samakaleen samajik disha aur Premchandra Jee ke prasangikata*. BHU. Dr Kailash Narain Tewari, Department of Hindi, Banaras Hindu University, Varanasi.

5. Pandey, Chandra Kant Dev. *Samkaleen rajnitik paridrishya aur rajnitik kavtayan*. BHU. Dr Chandra Kala Tripathi, Lecturer, Department of Hindi, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

6. Pandey, Hari Nivas. *Pragatisheel kavyadhara mein Trilochan ka kavya vaishishtya*. BHU. Dr K N Singh, Reader, Department of Hindi, Banaras Hindu University, Varanasi.

7. Rai, Rita. *Hindi ke asangath natak: Sandarbha aur swaroop*. BHU. Dr Narvedeshar Rai, Department of Hindi, Banaras Hindu

University, Varanasi.

8. Regola, Lucia. *Modern Hindi literature*. BHU. Dr Shukdev Singh, Department of Hindi, Banaras Hindu University, Varanasi.

9. Renu. *Nirala ke manvatavadi chetana*. BHU. Dr Kumud Prabha Srivastava, Department of Hindi, Banaras Hindu University, Varanasi.

10. Shahi, Mangla Gauri. *Swadhinata andolan ke sandarbha mein Premchand ke upanyason ka adhyayan*. BHU. Dr Indumati Singh, Reader, Department of Hindi, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

11. Shaji, P I. *Speeches and essays of Premchand: A critical study*. Kerala. Dr N Ravindranath, Prof and Head, Department of Hindi, University of Kerala, Kariavattom.

12. Shukla, Sandhya. *Bhojpuri lokgeeton mein jan-chetana*. BHU. Dr Narendra Singh, Department of Hindi, Banaras Hindu University, Varanasi.

13. Sivarajan, C. *A psychological study of the dramas of Mohan Rakesh*. Kerala. Dr N Ravindranath, Prof and Head, Department of Hindi, University of Kerala, Kariavattom.

14. Srivastava, Manju. *Madhya kaleen Bharat aur Goswami Tulsidas*. BHU. Dr Kumud Prabha Srivastava, Reader, Department of Hindi, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.

15. Sukumaran, K. *A sociological study of the works of Suryakant Tripathi Nirala*. Kerala. Dr N Ravindranath, Prof and Head, Department of Hindi, University of Kerala, Kariavattom.

16. Tripathi, Shashi Kant Mani. *Usha Priyamavada ka katha sahitya*. BHU. Dr Kumar Pankaj, Department of Hindi, Banaras Hindu University, Varanasi.

17. Yadav, Vijay Narain Singh. *Anchalik upanyason ke vikas mein Kashi ka yodan*. BHU. Dr Radhey Shyam Dubey, Department of Hindi, Banaras Hindu University, Varanasi.

Geography

1. Shukla, Manisha. *Perception of environmental pollution in Varanasi*. BHU. Prof Onkar Singh, Department of Geography, Banaras Hindu University, Varanasi.

2. Singh, Kaliash Nath. *Environmental pollution and health of Sanbhadra District*. BHU. Dr V K Kumra, Reader, Department of Geography, Banaras Hindu University, Varanasi.

3. Singh, Upendra Nath. *Urban housing problems and planning: A geographical study of Kanpur*. BHU. Dr V K Kumra, Reader, Department of Geography, Banaras Hindu University, Varanasi.

History

1. Chaturvedi, Vijaya Nand. *Abhilekha ke adhar per Madhya Pradesh mein antra rajya sambandhon ka adhyayan, 450 E P se 650 E P*. BHU. Dr T P Verma, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

2. Choubey, Ram Krishna. *Pracheen Bharat mein monodahik vyadhiyon mein mantra chikitsa: Ek adhyayan*. BHU. Dr P N Singh, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi and Prof G P Dubey, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

3. Choubey, Shailesh Kumar. *Harshvardhan ke natakon mein chitrit samajik jeewan*. HS Gour. Dr V D Jha, Department of Ancient Indian History, Culture and Archaeology, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

4. Dubey, Praveen. Shri E Raghvendra Rao: Vyaktitva evam krititva. HS Gour. Dr M P Pathak, Govt Girls College, Sagar.
5. Gopalakrishnan, P. Social status of women in the 16th, 17th and 18th centuries. Kerala. Dr A G Menon.
6. Kataria, Preeti. Uttar Bharat ke Mughal kaleen Hindu Mus-ilm tyohar aur mele. HS Gour. Dr Suresh Mishra, S N Govt College, Khandwa.
7. Sahu, Munna Lal. Betul Jile mein swatantrata andolan ka itihās. HS Gour. Dr R G Pandey, Govt College, Betul.
8. Sharma, Sanjun. Mahakaushal mein mahila jagriti aur swatantrata andolan. HS Gour. Dr S S Chauhan, Govt

Postgraduate College, Narsinghpur.

9. Shukla, Ramakant. Madhyaprant mein Bharat chhoro an-
dolan. HS Gour. Dr Suresh Mishra, S N Govt College, Khandwa.
10. Soni, Shyam Sundar. Madhya Prant aur Berar ka vikās,
1905- 1939. HS Gour. Dr D B Trivedi, Reader, Department of
History, Dr Hari Singh Gour Vishwavidyalaya, Sagar.
11. Ushakumari, K R. Role of Changanssery Parameswaran
Pillai in the socio-political evolution of Travancore 1920 to 1938.
Kerala. Dr S Ramachandran Nair, Rajee Nivas, Mannarakonam,
Vattiyoorkavu P O, Thiruvananthapuram.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Gopalakrishnan, Nalukandathil Keshavan. Design and
development of national energy data bases: A case study. Karnatak.
Dr C R Karisiddappa, Reader, Department of Library and Informa-
tion Science, Karnatak University, Dharwad.
2. Pathan, Abdulmajid Mahboobakhan. The development and
the management of health sciences library network for the State of
Karnataka, India. Karnatak. Dr C R Karisiddappa, Reader,
Department of Library and Information Science, Karnatak Univer-
sity, Dharwad.

Psychology

1. Gujarati, I D. The study of self concept through performance
technique. Saurashtra. Dr M R Kothari.
2. Jain, Archana. Role of imagery in memory. HS Gour. Dr A
K Purohit, Head, Department of Psychology, Dr Hari Singh Gour
Vishwavidyalaya, Sagar.
3. Maulik, Manisha. A study on the assessment of ego-integrity
of clinical persons by projective tests with special reference to draw
a person test. Calcutta.
4. Segar, R. Group cohesiveness in relation to job satisfaction,
job involvement, organizational climate and mental health among
industrial workers. Madras.

Sociology

1. Bhagavan, M S. Influence of movies on delinquent be-
haviour: A study of certain psychosocial correlates of movieviewing
patterns among delinquents and non-delinquents. Madras.
2. Garg, Hemlata. Ek visthapit samuh ka samaj shastriya
vishleshan: Katni Nagar ke Sindhi samuh ke vishesh sandarbh
mein. Durgawati. Dr C S S Thakur, Head, Department of Sociology,
Rani Durgawati Vishwavidyalaya, Jabalpur.
3. Savinderjeet Kaur. A sociological study of working of juvenile
judicial system in Punjab. Punjabi. Dr G S Bhatnagar, Prof,
Department of Sociology, Punjabi University, Patiala.

Social Anthropology

1. Das, Mita. Potters and their crafts: A study in caste tribe
contact area of Eastern India. Calcutta.

2. Mao, John. Manipur: A cultural region. Manipur. Prof Ch
Budhi Singh, Department of Anthropology, Manipur University,
Imphal.

Social Work

1. Geetharamani, G. Socio economic profile of pulmonary
tuberculosis patients. Madras.

Political Science

1. Shukul, Harish Chandra. Indian non-aligned thought and
praxis: A comparative and typological study of India's foreign
policy strategy. Baroda.

Economics

1. Dave, Ragini. Trends and patterns in agricultural produc-
tion and productivity in Sagar District, Madhya Pradesh, 1974-75
to 1983-84. HS Gour. Prof R Mehrotra, Head, Department of
Economics, Dr Hari Singh Gour Vishwavidyalaya, Sagar.
2. Gogate, Anita. The Nasik Municipal finance: A case study.
SNDT. Dr Sulochana Nadkarni.
3. John, V Jacob. Analysis of international commodity trade
and export instability with reference to regional cooperation of
selected countries and commodities. Madras.
4. Mahapatro, Bibhuti Bhusan. Industrial wage regulation in
Orissa: An empirical study. Berhampur. Dr S B Mahapatro,
Reader, Department of Industrial Relations and Personnel Manage-
ment, Berhampur University, Berhampur.
5. Mallappa, A. Regional rural banks and weaker sections: A
study of Tungbhadra Gramin Bank in Karnataka. Venkateswara.
Prof E Munirathnam Naidu, Department of Economics, Sri
Venkateswara University College, Tirupati.
6. Singh, Chandra Kumar. Prospects and barriers to transfers
dryland farm technology in District Mirzapur, UP. BHU. Dr V K
Singh.
7. Sohoni, Vidya. Women employees in Satpur and Ambad
Industrial Estates, Nasik: A socioeconomic study. SNDT. Dr
Sulochana Nadkarani.
8. Venkateshwar Rao, A. Social security schemes for industrial
workers: A study of Employees State Insurance Scheme in Madhya

Pradesh. Durgawati. Dr S N Singh, G S College of Commerce and Economics, Jabalpur.

Law

1. Jain, Anil Kumar. A critical study of reference making power in context with industrial adjudication. Durgawati. Dr N V Paranjpe, E-7, HIG 740, Arera Colony, Bhopal.

Public Administration

1. Ananthasayanam, C V. Pollution control administration in Tamil Nadu. Madras.

Military Studies

1. Rajan, Subha. Indian strategic perspectives in the Indian Ocean. Madras.

Education

1. Asha Rani, L. A study of adult education programme with specific reference to vocational skills, functionality component in the rural and urban women centres conducted by the voluntary agencies in Tamil Nadu, India. Madras.

2. Banerjee, Supriya. Impact of educational ideals and values of Sadhu T L Vaswani on the students of St Mira's School. SNTD. Dr (Smt) V B Mehta.

3. Chandy, Sumi. Application of certain pupil deficit models to differential achievement in English. Kerala. Dr (Mrs) Vasantha Ramkumar, Prof and Head, Department of Education, University of Kerala, Thiruvananthapuram.

4. Jain, Pushpa Devi. A depth study into the functioning of A P Open University. Osmania.

5. Money Amma, V G. A study of the causes and correlates of wastage among scheduled caste pupils at the primary stage. Kerala. Dr (Mrs) Vasantha Ramkumar, Prof and Head, Department of Education, University of Kerala, Thiruvananthapuram.

6. Sudhakara Reddy, Y. An investigation into the creativity of adolescent boys and girls. Venkateswara. Dr A Venkata Rami Reddy, Reader, Department of Education, Sri Venkateswara University College, Tirupati.

7. Thaker, Bhartiben Harishbhai. Standardization of a group test of reasoning ability with a view to study its relation with the adjustment of high-school students of Kheda District. Patel. Dr C C Pathak, Principal, M B Patel College of Education, Sardar Patel University, Vallabh Vidyanagar.

Commerce

1. Balu, V. Problems of small scale entrepreneurs in Madras City and its environs. Madras.

2. Dinakara Babu, R. A study on the distribution pattern of Tamil feature films in Tamil Nadu. Madras.

3. Dixit, Upendra Kumar. Trends in marketable and marketed surplus of paddy and wheat in Jabalpur District, Madhya Pradesh. Durgawati.

4. Jayaraj, B Joseph. Corporate culture, quality of work life and organizational effectiveness: A study of selected industrial organizations in Madras. Madras.

5. Lakshmi, K. Financial performance of diversified companies: A strategic analysis. Madras.

6. Mishra, Mangal. Sarvajanic kshetra ke bankon ke labh deyat: State Bank of Indore ke vishesh sandarbh mein. Devi Ahilya. Dr D P Mishra, Principal, Shri Vaishnav Commerce College, Indore.

7. Mohite, Jagdish Raghunathrao. Macro-economic relation-

ships and tests of causality: A case study of India. Baroda.

8. Narasimhan, M S. Project risk analysis by development banks. Madras.

9. Parmar, Thakorsinh Bahecharsinh. Recovery of priority sector advances by commercial banks: A study of Surat and Bulsar Districts. Baroda.

10. Raveendra Reddy, P. Trade unionism in Nellore Town, 1987: An analysis of union structure, finances and functions. Venkateswara. Prof G Raghava Reddy, Prof and Head, Department of Economics, Sri Venkateswara University Post Graduate Centre, Kavali.

11. Thakur, Channoo Lal. Study on the patterns of energy consumption in agricultural sector of Madhya Pradesh. Durgawati.

12. Uma, S. Working capital analysis in State Road Transport Undertakings in Tamil Nadu. Madurai.

Home Science

1. Kaul, Anuradha. Educational economics and special impact of voluntary training agencies offering income generating programmes to low socio-economic status women of Baroda City. Baroda.

2. Mariakutty, K C. A study of the effect of institutional living on the cognitive and psychological development of adolescent. SNTD. Dr Manjula Warty.

3. Satyavani, K. Socio-economic and cultural determinants of nutritional status of women. SNTD. Dr (Smt) G Subbulaxmi.

Management

1. Dharmani, Amar Nath. Managerial effectiveness in relation to certain personal and situational variables in public sector banks. Punjabi. Prof P K Kapoor, Department of Business Management, Punjabi University, Patiala and Dr R D Pathak, Head, Department of Business Management, Maharshi Dayanand University, Rohtak.

2. Goyal, Mohan Lal. Access control in distributed heterogeneous data-base management systems. JNU. Dr G V Singh.

3. Suchitra Mouly, V. A study of an R & D Team in an Indian Research Organization: An ethnographic approach. IISc.

INDIAN INSTITUTE OF ADVANCED STUDY

**RASHTRAPATI NIVAS
SHIMLA - 171005**

University Readers/Associate Professors interested in coming to the Indian Institute of Advanced Study on deputation as Secretary (Academic), and Deputy Registrars as Secretary (Administration & Finance), may send their bio-data to the Director of the Institute before January 15, 1992.

INDIAN INSTITUTES OF TECHNOLOGY

Bombay, Delhi, Kanpur, Kharagpur, Madras and Institute of Technology,
Banaras Hindu University, Varanasi

Joint Entrance Examination and Direct Admission

Notification for the Session 1992-93

A JOINT ENTRANCE EXAMINATION (JEE) will be held at a large number of centres throughout India on **May 6 and 7, 1992**, for admission to B.Tech., B.Pharm., B.Arch, Integrated M.Sc. Integrated M.Tech and Cooperative Integrated, M.Tech Programmes. All Indian Nationals whether in India or abroad seeking admission must appear and qualify in the JEE.

There will be **FOUR** papers in all, each of 3 hours duration. The first will be a Screening Paper containing objective type questions in Chemistry, Physics and Mathematics. The other three will be main papers in Chemistry, Physics and Mathematics. The answerscripts of Main Papers of only those candidates who qualify in the Screening Paper will be evaluated. Merit list will be prepared on the basis of their performance in the Main Papers only.

Question Papers will be in **ENGLISH/HINDI**. Candidates are permitted to write answers in English or in any one of the following Indian Languages: Assamese, Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Oriya, Punjabi, Sindhi, Tamil, Telugu and Urdu **PROVIDED** they have **APPEARED/** are **APPEARING** at their 10 + 2 or equivalent examination answering Chemistry, Physics and Mathematics question papers in that language.

ELIGIBILITY

1) Only those candidates whose date of birth falls between October 1, 1971 (upper age limit relaxable by 5 years for SC/ST, i.e. October 1, 1966) and September 30, 1976 (both days inclusive) are eligible.

2) Candidates should have passed the final examination of 10 + 2 system or equivalent with a paper each in Chemistry, Physics and Mathematics. Those appearing 10 + 2 or equivalent examination and expecting to pass the same before September 30, 1992 may also write JEE for consideration of provisional admission. Candidates who have passed the Senior Secondary Examination from National Open School with Mathematics, Physics (theory and practical) and Chemistry (theory and practical) as independent papers are also eligible.

RESERVATION OF SEATS

There is reservation of seats for candidates belonging to Scheduled Castes (15%) and Scheduled Tribes (7.5%). Relaxed qualifying norms are applicable only for SC/ST candidates.

At each Institute, two seats from General Category are available for children of Defence/Para military Forces Personnel killed or permanently disabled in action during war or peace time operations and one seat from the General Category is available for physically handicapped candidates. All such candidates must, however, appear and qualify in the JEE for preferential allotment of Institute and Course.

APPLICATION FORM AND INFORMATION BROCHURE

Obtainable from December 2, 1991 in **PERSON** from JEE counter or by **POST** from the Chairman, Joint Entrance Examination, Indian Institute of Technology, New Delhi-110 016 on payment of Rs. 40/- by (i) Postal Order payable to IIT, Delhi at IIT, Post Office, New Delhi or (ii) Bank Draft payable to IIT, Delhi at New Delhi (State Bank of India drafts may be drawn on New Delhi branch, Code: 7687). Postal request must be accompanied by two slips of size 5cm x 10cm containing candidate's complete postal address including pin code. The envelope containing bank draft/postal order and address slips must be clearly marked with the words **JEE 1992 APPLICATION FORM**.

LAST DATES

To obtain Application Form by **POST: 6th January 1992**. To obtain Application Form in **PERSON: 16th January 1992**. For receipt of completed application at JEE Office at all **FIVE IITs: 21st January 1992**.

DIRECT ADMISSION OF FOREIGN NATIONALS (DAFN)

A limited number of seats will be filled by direct admission of foreign nationals of developing countries whether studying in India or abroad who fulfil the prescribed eligibility norms. For further information, please write to **The Organising Chairman, Undergraduate Admission Committee, JEE Office, Indian Institute of Technology, Powai, Bombay-400076, INDIA**.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF BOMBAY

Corrigendum to the advertisement dated 6th September, 1991 published for the post of Professor of Public Administration in the University Department of Civics & Politics

The pay-scale of the post is Rs. 4500-150-5700-200-7300. In addition to pay, Dearness Allowance, House Rent Allowance and Compensatory Local Allowance will be paid according to the University rules. The post carries retirement benefits according to the existing rules of the University. The appointment to the post will be made on probation for a period of two years.

The minimum qualifications prescribed for the post are as under :-

An eminent scholar with published work of high quality, actively engaged in research. About ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who have made significant contribution to knowledge.

The additional qualification prescribed for the post is as under :-

"Teaching and research experience in Public Administration/Development Administration/Comparative Administration. Guiding research in Public Administration, especially with reference to India, considered desirable."

The post is not reserved for candidates belonging to backward classes viz. SC/ST/DT & NT.

The last date for receipt of applications which was earlier 10th October, 1991 has been extended up to Monday, 16th December, 1991. In the case of candidates from abroad, Andaman and Nicobar Islands and Lakshadweep the last date for receipt of applications is Tuesday, 31st December, 1991.

The other particular mentioned in the abridged advertisement as also in the detailed advertisement remain the same.

Prescribed forms of application can be had free of charge from the Teaching Appointments Unit, Registrar's Office (Room No. 134), University of Bombay, Fort, Bombay 400 032. Requests for supply of a set of nine prescribed forms by post should be made sufficiently in advance with a self-addressed stamped (Rs. 6.00) envelope of the size 27 x 12 cms.

G. M. Rajarshi
REGISTRAR

MOTHER TERESA WOMEN'S UNIVERSITY

13 Race Course Road
Madras-600 032

NOTIFICATION NO.73

Applications in the prescribed form are invited from women candidates for the following posts:

Department	Post	No. of Vacancies
Education	Reader	1
Family Life Management	Professor	1
Family Life Management	Lecturer	1
Music	Reader	1
Psychology	Reader	1
Psychology	Lecturer	1
Sociology	Professor	1

Specialisation

Education:	Guidance and Counselling/ Population Studies
Music:	Vocal
Psychology:	One post for Organisational Behaviour/Industrial Psychology and the other post open
	The scale of pay as per UGC

Note

1. The University reserves the right to short list the candidates
2. The University also reserves the right to fill up or not to fill up the post/posts
3. Candidates already in service should send their application through proper channel or they should produce 'No Objection Certificate' from the employers at the time of interview, if called.

The prescribed form of application and details regarding essential, general and special qualifications and experience required, can be obtained from the undersigned on requisition mentioning the notification number accompanied by

a) a self addressed envelope with postage stamps to the value of Rs. 3/- affixed thereon and

b) a State Bank of India D.D. for Rs.20/- payable at Madras, drawn in favour of the REGISTRAR, MOTHER TERESA WOMEN'S UNIVERSITY, MADRAS-600032

The Last date for receipt of filled in application is 20.12.91. Applications received after the due date will not be considered.

REGISTRAR

WANTED PRINCIPAL

Applications are invited for the post of a PRINCIPAL in Smt. Kapila Khandvala College of Education, Juhu Road, Santa Cruz (West), Bombay-400 054. The medium of instruction is ENGLISH.

The post of Principal is for General Category i.e. Open to all, subject to the final decision of University authority. The qualifications for the post of Principal are as prescribed in Vice-Chancellor's Direction Circular No. CONCOL/VCD/89 of 26-3-1991. Lecturer possessing the qualifications prescribed in Vice-Chancellor's Direction Circular No. VCD/CONCOL/121 of 19-4-1991 and 10 years approved teaching experience for undergraduate/postgraduate classes are also eligible for appointment to the post of Principal. Scale of pay for the post of Principal is as prescribed by the University of Bombay. Details of Qualifications, Pay-scales & Allowances shall be supplied on request from the applicants. The selected Principal shall be provided with rent free quarters or H. R.A. as admissible.

Applicants already in employment should apply through proper channel. Applicants should account for breaks, if any, in their academic career.

Applicants should send their applications stating qualifications, class, percentage, age, experience etc. with true copies of testimonials and certificates within 15 days from the date of publication of this advertisement.

Hon. GEN. SECRETARY.

AGRICULTURAL SCIENTISTS RECRUITMENT BOARD (I.C.A.R.)

KRISHI ANUSANDHAN BHAVAN, PUSA, NEW DELHI - 110012.

CORRIGENDUM

(1) The following may also be read in respect of the posts appearing at S.No. 12 to 21 of A.S.R.B's Advertisement No. 2/91 published in Employment News and other newspapers on 3.8.1991:

"The candidature of ICAR Scientists who were holding S-2 and S-3 positions as on 31.2.85 will also be considered on the basis of old criteria of qualifications as applicable to these posts prior to 1.1.1986".

(2) In respect of the post of Project Coordinator(NSP) appearing at S.No. 17 of Advertisement No. 2/91, the Essential Qualification No.2 may now be read as under instead of the qualification already published in the advertisement:

"Good academic record with Doctorate in any branch of Crop Sciences."

Other contents remain unchanged. The last date for receipt of applications in ASRB in respect of the above posts is extended upto 16-12-91. Persons who have already applied in response to Advertisement No.2/91, need not apply again.

Sukh Pal

UNDER SECRETARY(R)

CENTRAL INSTITUTE OF HIGHER TIBETAN STUDIES

(DEEMED UNIVERSITY)

SARNATH, VARANASI

ADVERTISEMENT NO.1/91

Applications on the prescribed forms are invited for the following posts:-

*E.Q.: = Essential qualification.

D = Desirable.

1. One Post of Director & One Post of Deputy Director, Rare Buddhist Text Research Project.

Pay Scale:-4500-150-5700-200-7300.

E.Q.: (a) An eminent scholar having consistently good academic record with (B+) in Master's degree in Buddhist studies (b) Ph.D. or published work of high research value in the subject concerned (c) Atleast 10 years teaching experience at postgraduate level or research (d) Experience in Editing, translation & Restoration work with special reference to Buddhist Tantra.

D.Q.: Knowledge of Tibetan/English

2. Two posts of Reader (One in Mool Shastra and One in Nyingma Sampradaya)

Pay Scale:-3700-125-4950-150-5700.

E.Q.: (a) Doctorate or M.Phil or equivalent traditional degree or published work of Research value in the subject concerned. (b) Consistent good academic record with first high or high second division (b+) in Master's degree or equivalent traditional degree in the subject concerned (c) about 5 years teaching experience in a Monastery or Post graduate classes (d) Research guide experience.

D.Q.: (a) Knowledge of Hindi/Tibetan (b) Experience in Restoration/Translation and Editing work.

3. 5 Posts of Lecturer (One in Mool Shastra, One in Sakya Sampradaya, One in Kargyud Sampradaya, One in English and One in Sanskrit).

Pay Scale:-2200-75-2800-100-4000.

E.Q.: (a) Doctorate or M.Phil or an equivalent traditional degree or published work of standard Research value in the concerned subjects (b) consistent good academic record with first or high second division (b+) in Master's degree or equivalent degree in the subject concerned. (c) Five years teaching experience in a Monastery or graduate or postgraduate classes. (d) An acute interest and experience of translation editing and restoration work. (e) M.A. with specialization in Vyakaran or Indian Philosophy for the post of Sanskrit.

D.Q.: Knowledge of Tibetan/Sanskrit/Hindi.

4. One Post of Asstt. Editor (Restoration)

Pay Scale:-2200-75-2800-100-4000.

E.Q.: (a) Acharya or equivalent degree in Buddhist Studies (b) Erudition in Tibetan and any one other language i.e. English or Hindi or Sanskrit. (c) Two years experience of Restoration work with knowledge of Tibetan and other languages in the concerned field.

5. One Post of Research Asstt. (Dictionary

Project)

Pay Scale:1640-60-2600-E.B.-75-2900.

E.Q.: (a) Postgraduate in Sanskrit Vyakarn or Acharya in Bhot Bauddh Darshan or equivalent degree in Tibetan language or literature. (b) Consistent good academic record with first or high second class in Master degree or equivalent (c) Erudition in Tibetan or Sanskrit Language.

6. 2 Posts of T.A. (One office and One Publication)

Pay Scale:1200-30-1800-EB-40-2040.

E.Q.: (a) Purva Madhyama or equivalent (b) Knowledge of Tibetan language with a standard of Matriculation (c) Knowledge of English or Hindi or Tibetan typing with minimum speed of 40 w.p.m. (d) Proficiency in Hindi.

7. One Post of Steno-Typist (PA to Registrar)

Pay Scale:1200-2040

E.Q.: (a) Matric or equivalent (b) Knowledge of English/Hindi Short-hand with minimum speed of 80 w.p.m. (c) Knowledge of English and Hindi typing with minimum speed of 40 w.p.m. and 30 w.p.m. respectively (d) Knowledge of Tibetan/Hindi/Sanskrit.

LIBRARY DEPARTMENT

Posts: (1) Professional Assistant

(2) Cataloguer (Special Tibetan language)

(3) Cataloguer

(4) Audio - Visual Assistant

(5) Library Assistant (Special Tibetan language)

No. of vacancies: (1) One (2) One (3) One (For Tibetan Tripitaka Section) (4) One (5) Three (One for Tibetan Stack, One for Circulation & One for Reference Section)

Pay Scale: (1) to (3) Rs.1640-2900 (4) Rs.1400-2300 (5) Rs.1350 -2200.

Age Limit: (1) 25 - 45 Yrs (2) & (3) 21-45 Yrs (4) to (5) 19-45 Yrs.

Qualifications: E.Q. for essential qualification and D.Q. for desirable qualification.

- (1) E.Q.: (a) Acharya/MA in humanity or philosophy or comparative religion (b) A degree/Diploma in Library Science (c) Proficiency in Buddhist/Tibetan Studies of the Standard of atleast graduate level.

D.Q.: Knowledge of Tibetan language and traditional Buddhist subjects will be preferred.

OR

E.Q.: (a) Shastri/BA from recognised University (b) Degree/ Diploma Lib. Sc. (c) Proficiency in Buddhist/Tibetan studies atleast graduate level (d) 4 Yrs experience in University or Graduate College Library.

D.Q.: Knowledge of Tibetan language & traditional Buddhist subject preferred.

- (2) E.Q.: (a) Shastri/BA degree from a recognised university (b) A degree/Diploma in Library Science (c) Knowledge of Tibetan language of atleast intermediate level (d) 3 Years experience of working in a library of University/Graduate college level; D.Q.: Knowledge of Bud-

dhist/Traditional Tibetan subjects will be preferred.

- (3) E.Q.: (a) A degree from a recognized university (b) A degree in Lib.Sc. (c) Atleast 3 years experience of working in a library of University/Graduate college level;

D.Q.: Knowledge of Sanskrit & Tibetan languages.

- (4) E.Q.: (a) U.M./Intermediate (b) Proficiency in English, Hindi & Tibetan language atleast of Intermediate standard (c) 2 years working experience (d) Aptitude for Audio/Visual recording work.

D.Q.: (a) Knowledge of Buddhology/Tibetology (b) Certificate in library science will be preferred.

OR

(a) Shastri/B.A. degree from a recognised university (b) Proficiency in English, Hindi & Tibetan language atleast of intermediate standard (c) Aptitude in Audio/Visual recording works.

D.Q.: (a) Knowledge of Buddhology/Tibetology (b) Certificate in Library Science will be preferred.

- (5) E.Q.: (a) U.M./Intermediate (b) Certificate in Library Science (c) Proficiency in English, Hindi & Tibetan language atleast of Intermediate standard (d) 2 Years experience of working in a library.

D.Q.: (a) Knowledge in Buddhology/Tibetology will be preferred (b) C.Lib.Sc.

OR

E.Q.: (a) Shastri/B.A. from recognised university (b) Certificate in Library Science (c) Proficiency in English, Hindi & Tibetan languages of atleast intermediate standard.

D.Q.: Knowledge in Buddhology/Tibetology will be preferred.

GENERAL CONDITIONS:

(a) Applications containing full particulars with attested copies of certificates and marks-sheets testimonials etc. should reach to the undersigned within 21 days after the date of publication of this advertisement (2) Applications received after the due date can only be entertained with the prior approval of the Chairman of the Institute (3) No. T.A. will be paid to the candidates called for interview (4) Employed candidates must apply through proper channel and persons not fulfilling the requisite qualifications must not apply (5) The Institute reserves the right to entertain or reject any application without assigning any reason thereof (6) Canvassing in any form or influencing by any way will be treated as disqualification and such application will not be considered (7) Application forms may be obtained from this office on any working day by payment of cash or crossed postal order payable to the Registrar of the Institute for Rs.5/- for the posts under serial No.1 to 5 and 1 to 3 of library post and Rs.2/- for the library post and remaining posts.

K. P. Singh
REGISTRAR



IGNOU

Applications are invited from Indian citizens for filling up the following posts in the Indira Gandhi National Open University.

1. PROFESSOR (PUBLIC ADMINISTRATION)
2. PROFESSOR (ECONOMICS)
3. PROFESSOR (LIFE SCIENCES)
4. PROFESSOR (COMPUTER SCIENCE)
5. PROFESSOR (WOMEN'S EDUCATION)

Qualifications

Essential: An eminent scholar with published work of high quality (in the relevant subject) actively engaged in research. About ten years' experience of teaching, research and/or extension. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge (in the relevant subject).

Desirable qualifications for Professor (Computer Science)

Broad expertise and active association in the development of computer science programme in an Institute of higher learning.

Specialisations

Databases, Natural language processing, Parallel processing, Computer animation and Graphics, Bezier technique and Geometric modelling.

NOTE: The person selected may be appointed either as Professor in the School of Computer and Information Science or as Director of the Computer Division of the University.

Additional qualifications for the post of Professor (Women's Education)

Should have considerable experience in Women's Education, Women's Studies or any other relevant areas.

6. PROFESSOR (HEALTH SCIENCES)

Qualifications

Essential: M.B.B.S., with Post-graduate qualification, i.e. M.D. or any other equivalent qualification in any branch of medicine.

10 years' experience after obtaining the qualifying degree, i.e. M.D. out of which at least 4 years should be in teaching in a recognised institution.

Desirable

Experience in administration, community health and preventive and social medicine.

7. DIRECTOR (COMMUNICATION DIVISION)

Qualifications

1. At least a Master's Degree in any discipline such as Arts, Science and professional fields.
2. At least 8 years of professional experience at a senior (supervisory) level in areas like the use of media for education and development, production of programmes for Radio & T.V., communications technology and management of media centres.

The University might consider conferring the status of Professor on

the person if he has also a Ph.D degree and considerable teaching/research experience.

8. READER (NURSING)

Qualifications

Essential: M.Sc. in Nursing (general or with specialisation) from a recognized institute/University with a minimum of 7 years experience of which at least 5 years should be in teaching in a nursing college.

Desirable: M.Phil (Nursing) or Ph.D in any one of the allied areas.

Scale of Pay

Director/Professor: Rs. 4500-150-5700-200-7300 plus usual allowances as admissible under the University rules.

Reader: Rs. 3700-125-4950-150-5700 plus usual allowances as admissible under the University rules.

The following general condition is applicable to all posts.

Additional Qualifications: Experience and proven ability in imparting education through various communications media and innovation in distance teaching methods and materials.

Note: (1) It will be open to the University to consider the names of suitable candidates who may not have applied. (2) Relaxation of any of the qualifications may be made in exceptional cases in respect of all the posts on the recommendations of the Selection Committee. (3) Canvassing in any form by or on behalf of the candidates will be a disqualification. (4) Candidates from outside Delhi, when called for interview will be paid to and fro second class rail fare. (5) The university reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

The prescribed application forms can be had from the office of the Director (Teachers' Affairs) located in Block No.4, Room No. 20, Indira Gandhi National Open University, Mediant Garhi, New Delhi-110068.

The prescribed application form can be had by post also from the above address on written request accompanied by a self-addressed and stamped envelope (size 28x13 cms) bearing postage stamps of Rs. 4/-. Requests not accompanied by stamped self-addressed envelope will not be considered.

Applications duly completed along with attested copies of degrees, other certificates, mark-sheets, published research articles, etc. should reach the following address by 23rd Dec. 1991.

Director (Teachers' Affairs)

Indira Gandhi National Open University

Maldan Garhi, IGNOU Post Office, New Delhi-110068

The candidates will have to produce the original documents relating to their age, qualifications, experience etc. at the time of interview.

Applications incomplete in any respect, and those received after the due date shall not be entertained.

University News

ISSN-0566-2257

MONDAY, DECEMBER 9, 1991

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CLASSIFIED ADVERTISEMENTS

JAWAHARLAL NEHRU UNIVERSITY NEW DELHI ADVT. NO. A&E-II/5/91

JNU has openings for faculty positions at various levels that is Professors, Associate Professors and Assistant Professors in the areas of specialization indicated against each:

SCHOOL OF INTERNATIONAL STUDIES

1. Professor in International Organization (with Specialization in International Relations in General and International Organization in particular with Specialization in International Organisation (Political)/India and the United Nations).
2. Associate Professor in Disarmament Studies (with Specialization in Defence Economics/Strategic Studies).
3. Associate Professor in South Asian Studies.
4. Associate Professor in Chinese Studies.
5. Associate Professor in Gulf Studies.
6. Assistant Professor in Sub-Saharan Studies (Leave Vacancy).

SCHOOL OF SOCIAL SCIENCES

7. Assistant Professor in Geography (with Specialization in Geo-Morphology).
8. Professor in Sociology of Education.
9. Professor in Social Psychology of Education.
10. Associate Professor in History of Education.
11. Assistant Professor in Social Psychology of Education.
12. Professor in Macro Economics.
13. Associate Professors (Two Posts) in Economic Theory/Economic History/Quantitative Economics.
14. Assistant Professor in Economic Theory/Economic History/Quantitative Economics.
15. Associate Professor in Medieval Indian History.

CENTRE FOR BIOTECHNOLOGY

16. Professor of Biological/Biophysical Chemistry.
17. Associate/Assistant Professor of Virology/Genetic Engineering.

SCHOOL OF LANGUAGES

18. Assistant Professor in Chinese (Leave Vacancy).

ESSENTIAL QUALIFICATIONS

For Professor: (a) An eminent scholar with published work of high quality, actively engaged in the area(s) of research as indicated against each post. About ten years' teaching and/or research experience including experience of guiding research at doctoral level in the area(s) of specialization as indicated against each post. **OR** (b) An outstanding scholar with established reputation who

has made significant contribution to the knowledge in the concerned area(s).

For Associate Professor: Good academic record with doctoral degree or equivalent published work in the areas of specialization as indicated against each. Actively engaged in research or innovation in teaching methods or production of teaching materials. About five years' experience with minimum three years as lecturer or equivalent position.

For Assistant Professor: Master's degree in the relevant discipline as indicated against each with at least 55% marks or its equivalent grade and good academic record.

Note: For the post of Assistant Professors the candidates should have qualified the eligibility test as prescribed by the UGC. However, the following categories of candidates have been exempted from appearing in the eligibility test.

- (a) those who have passed the UGC/CSIR JRF examination;
- (b) those who have already been awarded Ph.D., M.Phil upto 31/3/1991 and will be awarded Ph.D. upto December, 1992.

DESIRABLE QUALIFICATIONS/SPECIALIZATION

For Post No. (1): M.A. in History, Political Science, International Relations or Economics.

For Post No. (2): Research Publications in the field in Indian Defence Studies.

For Post No. (3): At least four years' research experience in Regional Co-operation among Developing Countries, with particular reference to South Asia, preferably with grounding in Economics.

For Post No. (4): (a) Knowledge of Chinese language; (b) should have worked and have publication in the field of either Chinese history and politics or economy or foreign policy.

For Post No. (5) Master's Degree in Political Science/History/Economics/Sociology /West Asian Studies; (b) Ph.D. in the relevant discipline; (c) Expertise in Gulf Countries; (d) Knowledge of the Persian Language; **NOTE:** If no candidate is found suitable for the post of Associate Professor, selection may be made for an Assistant Professor.

For Post No. (6): (a) M.Phil or Ph.D. on Sub-Saharan African Studies or equivalent Research Work; (b) Specialization in Indo-African Diplomatic and Economic Relations with emphasis on Security of Island States in the Western Indian Ocean/African Political Economy.

For Post No. (7): (a) M.A. or M.Sc. in Geography with Specialization in Geomorphology; (b) Experience in using remote sensing techniques in Geomorphology in conducting field work/guiding research; (c) Proven ability of conducting students' field work of a long duration in the mountainous areas.

For Post No. (8): Significant work in one or

more of the thrust areas viz., Equity in higher education; social context of educational polity; higher education of women, SC/ST and minorities.

For Post No. (9): Significant work in one or more of the thrust areas mentioned below: Organization and management of higher educational system; motivation and personality development; teaching-learning systems and processes.

For Post No. (10): (a) Modern Indian History with specialization in education; (b) evidence of high aptitude for and of ability to teach and guide research.

For Post No. (11): (a) Experience of conducting multivariate analysis and of data processing including computer programming in the field of Psychology of Education; (b) High aptitude for, and ability to guide research in Psychology of Education; (c) Some teaching experience preferably in the field of Educational Studies.

For Post No. (15): Ability to develop teaching and research in Comparative Study of Medieval Indian Regions and India and other regions. Knowledge of a Medieval foreign language other than English will be an added qualification.

For Post No. (16): Master's degree in Chemistry, Doctorate degree in Chemistry/biophysics/biochemistry with research contribution in either protein or nuclear acid chemistry.

For Post No. (17): For Associate Professor: Doctorate degree in Chemistry/Biochemistry/Genetics/Microbiology. Experience with published evidence in animal viruses and/or engineering in eukaryotic genes. For Assistant Professor: Master's degree in Chemistry/Biochemistry/Genetics/Microbiology/Life Sciences.

For Post No. (18): (a) Speaking fluent modern standard Chinese with Beijing accent; (b) Training in Chinese language speaking areas.

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Editor :
SUTINDER SINGH

Inputs in Value Inculcation

J. S. Rajput*

The Context

Growth of a civilized society is intrinsically linked to the evolution of acceptance, and adherence to values in human life. Education is one of the most significant vehicles available to us to achieve this synchronisation. The global scenario is changing at such a fast pace that it is difficult to describe it as political, technological or geographical. It's all inclusive. Technological applications and utilisations have brought each nation, each group and each culture as near to one another as these could hopefully be. Strangely enough, all these strides are giving rise to certain tangible perceptions of threats. People are concerned about cultural invasions from sophisticated and technologically advanced nations. What could really help at this juncture is a much enhanced self-assurance and self-confidence in one's own perceptions, traditions and cultures. No ethnic group or a nation would like to lose its identity howsoever small, nascent or ancient it may be. In years to come the role of education would also be to inculcate values of self-confidence and self-assurance in one's own selves and the identity of whatever they consider ture, valuable and worth being preserved. This would help in developing moral, ethical, cultural and humanistic values.

The perceptible impact of science and technology is that of materialistic development. Its fruits are not being distributed evenly. Majority is after the materialistic gains and in this unending race the ends are considered more important than the means. The greatest loss consequently is that of the humane aspect. Concern for others gets diminished with each passing day. The objective is just to possess what is considered luxurious or that which could provide a 'status' in the society. It is a killing rat race and it continues unabated. Consumerism has overtaken humanism.

The Impact

The technological impacts have broken barriers in many areas and the explicit impacts are many and manifold. Those who can pour in their cultures on others seem to have gained currency. Before a child learns about his own culture, he receives in abundance the external influences as a consequence of the technological invasions. These are easy, available and cater to the immediate comforts and needs. These do not require initial training in appreciation and understanding. Familiarity with one's own culture takes a back seat. The sublime is discarded. The lasting values of art and culture are simply ignored. What appeals to the immediate gets precedence over what could appear eternally. Thinking process stops functioning. Ability to discriminate amongst the perishable and the lasting gets hazy. The folk forms of art and culture are also vanishing likewise. The modernisation has delinked the indigenous from the invasive. Every indigenous culture is learnt through hard work, devotion and perseverance. These are now getting relegated to background.

Education here could play a crucial role by filling the vacuum that has been created and thus re-establish the traditional and also strengthen the

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links. Experience has shown that there exist history books where children learn about archaeological monuments only to answer a question of history in examination. Neither the teacher nor the curriculum developers felt the need to link these monuments to the culture and cultural development of the people which could lead to a sense of pride and the value of preservation of natural heritage. Education now has to take note of these aspects in all seriousness. Education prepares citizens of tomorrow. The technology and industrialisation are reshaping our future. Education endeavours to prepare citizens who know what is happening around them, who perceive what would be the shape of things in the next 10 years, 20 years or 50 years and who also visualise their own role which would make them contributing and useful citizens of the future. We need citizens of tomorrow who are not overawed and mesmerised by technological influences, who are prepared to utilise it as a tool only to serve, not to dominate. If any nation fails to prepare such individuals for tomorrow, it may become dependent on invasive technologies that may not suit the national needs and requirements. Several ethical issues would arise in such situations. The cultural and social perceptions could also get blurred.

With the receding threat of cold war, the threat of destructive technologies to human civilisation has, to some extent, receded. However, there are other dangers looming large on the horizon of civilisation. Ozone depletion, global warming, reduction of the green belt on earth are some of the dangers which could become extremely intense in their severity in not much distant a future. Educational content and intent needs to be rejuvenated to face these challenges squarely.

The Response

The countries which have lagged behind in technological and scientific field have, as a consequence, also lagged behind in the entire development process. They are in a hurry to catch up with the developed nations. It is indeed, their felt need. They urgently require new ideas and new technologies. Towards this they require manpower capable of responding to the situations with preparedness to understand the implications, analyse the situations and take rational and sound decisions. A simple issue like computer literacy needs to be viewed from the local angle along with its global implications. The mere lack of resources need not necessarily result in making an entire generation illiterate in the computer language. Alternatives need to be found out. Education has to provide an alert response.

During the last decade there have been movements

for curriculum reforms, development of new teaching learning materials and applications of educational technologies. The curricula have been modified to observe the impacts of new changes and discoveries and are replete with new ideas and new techniques. The teacher training systems are also supposed to observe and adopt new techniques, methodologies and technologies. Unfortunately, the teachers continue to teach in the traditional old pattern. Learning as such remains delinked from life though for the last two decades, it has been globally propounded that it must be the other way round. More intensive efforts are needed to keep the curriculum in pace with these changes. While theoretical pronouncements on child centred, activity based and linked to life education are supposed to be the key words in teaching learning process, the teachers certainly have not been fully prepared to internalise these and then to further transmit these to the learners. The need is to develop institutions and individuals. Institutions of educational training and research need to prepare personnel who understand the change and are capable of providing responsive interventions. These centres need to decipher the moral, ethical and humanistic dimensions on one hand and the consequences of materialistic pursuits on the other.

The Concern

The concern for educational intervention in value inculcation has been felt widely and deeply. As a consequence, attempts have been made to develop a global understanding of the issues involved. In the Regional Workshop on the Promotion of Humanistic, Ethical and Cultural Values in Education at NIER, Tokyo, 12-27 June, 1991, all the nations represented, strongly endorsed the value of 'caring for others'. This was considered the over-riding universal value in relation to the resolution of moral and ethical issues. It was also considered a key element for promotion of humanistic, moral, ethical and cultural values. The scope of caring for others was expanded to include the need to care for one-self, family, neighbours, other species, the welfare of society and the nation and of the livability of the earth. Each nation strongly endorsed the need to protect cherished values — those which were traditional, religious, cultural in origin and are deeply embedded within the hearts and minds of the people. This was considered essential in the context of the trends of modernisation. References were made to a sense of ambivalence universally prevailing at the current juncture in relation to attitudes and procedural values, the proliferation of alternatives of goals and methods. Hence the need to develop capacity to select between the alternatives.

The advances in communications and the increased mobility of the people raises the possibility of perceiving and understanding, though not necessarily agreeing with, the interests, beliefs and views of others. The knowledge from availability of mass media could undermine wisdom of traditional sources of authority and inspiration. As a consequence, practically every country has initiated a great deal of activity in the areas of humanistic, ethical, moral and cultural values. Some offer these as separate courses at primary and secondary levels of education. Others infuse and integrate these in appropriate subject disciplines. The third category could be of those trying both the alternatives. An approach of innovation and integration is generally unique to each country. There are however, trends in commonalities of issues and problems which are generally very explicit and evident. These could form the basis of focus for cooperation on a much wider scale. Significant amongst these are the changing family structures, erosion of spiritualism, materialists pursuits, school as scapegoat and declining influence of parents. Discussions on these issues become the focal point and indicate the magnitude of concern in each country. Examined in the context of humanistic, moral/ethical and cultural values, the approaches adopted to inculcate these values are generally from amongst the following :-

- i) as a specific subject in the curriculum;
- ii) as a specific subject in the curriculum and integrated across subjects such as social studies, language or science and health courses;
- iii) integrated across subjects;
- iv) infused through the non-formal school programs such as extra-curricular activities and school projects, school assemblies, campaigns, school discipline and reward systems;
- v) parent-teacher and parent-school interaction;
- vi) teacher-pupil interaction; and
- vii) traditional systems of imparting religion based education.

It was felt that to strengthen the value inculcation through any of these approaches it is necessary to concentrate on preparation of teachers, educational administrators, planners and also to regularly review the curriculum and teaching learning materials in the context of value enrichment. Towards this, the significant place of co-curricular activities, utilisation of voluntary efforts, use of folk media, folk culture and national heritage could play a very significant role and need to be exploited adequately. Greater interaction of school, community and parents along with a sense of mutual responsibility and accountability could also contribute significantly.

The Teachers

The major role in these efforts will be played by the teachers who need to be prepared appropriately and sufficiently through pragmatic, skill oriented and responsive teacher education programmes. The products of these programmes should necessarily have the following traits in the context of value inculcation:

- i) Capacity to observe learners and analyse their needs to provide the necessary inputs, through deep insight and understanding and concern;
- ii) Involvement, with tact, in dealing with individual as well as groups behaviour of learners and capacity to understand and utilise the same;
- iii) Develop through well cultivated interest, capability to motivate and encourage learners in the art of self-learning. Furthermore, the teacher has to become a partner in this process as well;
- iv) Ability to guide and counsel, more by suggesting and by practical examples than by preaching;
- v) Interest in identifying and utilising more formal and informal situations through different techniques;
- vi) Conceptual understanding of the art and science of developing human personality in all its aspects with emphasis on integration, harmony, truth, beauty and excellence;
- vii) Familiarity with new transactional techniques, scientific and technological developments and impacts on a fast changing society in the developmental context. Appreciation of necessary educational implications in teaching learning strategies;
- viii) Pleasing, cheerful disposition, capable of inspiring students to pursue values, morals, ethics and excellence with sincerity and devotion; and
- ix) Willingness to establish close rapport with the community, parents and others working on voluntary basis on social and educational aspects.

If all these factors are viewed analytically it will be obvious that school alone cannot be assigned the sole responsibility for humanistic, moral and cultural values. It needs support of the entire society. One could be sure that once this is forthcoming, education is capable of playing the leading role in determining the relevant strategies. Education can no longer be viewed just as a narrow academic and intellectual pursuit. Let it be Education to Become. Only then it can humanise. Only then it can liberate.

Reservation in Admission to Higher Academic Courses

A Bundle of Judicial Confusion

N.L. Mitra*

A few words at the beginning

Reservation of seats in higher academic courses has a very significant and controversial role. According to Article 15(4) of the Constitution of India, the State is entitled to make any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes. In view of this provision the State can make any special programme for making arrangement for higher education to citizens of these categories. Reservation of seats in academic courses in the institutions of higher learning in all branches is one of the most important and significant special provision made by the State so far for the advancement of citizens of these categories of people. Though the constitutional validity of reservation provision is a settled principle of law yet there have been so many doubts and questions involved in the issue! The first issue agitated in the Court of Law was, of course, related to the question of quantum of reservation. Here the judicial philosophy is still predominantly based upon the classical interpretation of the word 'reservation' as merely exception to the 'general rule' and hence must not exceed 50% of the total seats¹. Of course, two decisions of the Supreme Court of India make a distinctive contribution to the law on this score with definitive variable note. In *Jagdish Saran's*² case, Krishna Iyer, J. observed in connection with validating reservation provision for more than 50% of the seats that "Where the human region from which alumni of an institution are largely drawn is backward the provision of high ratio of reservation hardly militates against the equality mandate" Similarly in the case of *D.N. Chanchala*³ the Court upheld the policy of reservation of 80% of the seats. In *Dinesh Kumar's*⁴ case the Court did not limit the reservation for SC/ST and OBC to 50% of the total seats and left the matter to the State Governments. Two other principles were also decided earlier, i.e.,

- (1) The Government can appoint a Selection Com-

mittee with qualified persons to select students through test indicated by the selection committee including interview.⁵

- (2) Selection with 100% district-wise or region-wise distribution and allocation of seats in the matters of admission to the medical college is violative of Art. 14⁶.

In the light of the foregoing, let us now try to expose the dialectic reasoning that the higher courts of India try to articulate or demolish the logic of reservation in constant efforts of managing the conflict on the issue in the last forty-five years.

(i) Nature of 'reservation' under Art.15(4)

Two sides of the story of the nature of 'reservation' have been raised in two decisions. In *Mathew*⁷ reservation under Art.15(4) has been considered as 'the right guaranteed' for a 'particular class as a whole'. In other words, 'reservation' in seats for admission into higher academic courses, was considered as the class or group right. On the other hand in *Anil*⁸ the Division Bench of the Bombay High Court did not have any doubt that Clause (4) of Art.15 was meant as 'exception to the fundamental right guaranteed' under Art. 15(1) and Art. 29(2). It seems that the debate even continued till date because the two division benches of the Bombay High Court decided on the issue in two different ways. In *Ravindra's*⁹ case the Division Bench relied on *Mathew* and decided the merit of the case in one way suggesting that any candidate of reserved category could be selected on merit in the general category seats and the reserved seats were to be filled up by candidates of the reserved category not having been able to compete with the general category candidates in the open seats. It means that whereas in the event of no candidate being selected in the open merit list, at least candidates from the reserved categories would be ensured as many seats as were reserved because there they were to be selected within the reserved group. But they were competent to capture as many seats as possible in the open merit category also on merit. No one could be discriminated on the ground of caste, sex, religion etc. to get admission since the right is ensured in Art.29(2). On

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the other hand, in *Sanghavi*¹⁰ another Division Bench of the same High Court decided that number of OBC candidates selected in the open merit category would be deducted from the number of seats reserved for the OBC candidates and if number of candidates of the category were selected in more seats in the open merit category than the number of seats reserved, there would be no necessity of admitting any candidate in the reserved quota. In the former case reliance was placed on the premise that reservation was a right of the group, whereas in the latter, reservation was considered as a special provision, Art.15(4) being only, according to the latter decision, an enabling and 'exception' provision.

(ii) A continued dilemma

In *Ravindra Sahadeo Sonawane v. The Dean, Grant Medical College, Bombay & others* one of the issues to be decided was whether one exclusive list was to be prepared for the reserved category of SC, ST and OBC candidates and the other exclusively for all other non-reserved category candidates for the open seats! Name of candidates belonging to any reserved category was not shown in the list of open merit list in spite of the fact that a candidate of the scheduled caste secured more marks than some of the candidates placed in the open merit list. A separate list was prepared for reserved category candidates. These lists were challenged on the ground that all candidates were to be considered for the open merit list including candidates belonging to SC/ST/OBC who could not be discriminated on the ground of caste. Only other SC, ST and OBC candidates who did not find place in the open merit list could be considered in the reserved category. The Court held, "It must be remembered that those who come in merit in the open merit list do so not on their quota reserved for them..." The court directed that the first list be made strictly on the basis of merit and open vacancies must be filled up strictly on the basis of merit. The reserved seats should be allotted to other eligible candidates from the respective reserved categories.

The merit of second part of the decision was immediately challenged in the same Bombay High Court in *Dr. Sanjay Manmal Sanghavi v. State of Maharashtra and others*¹². Hon'ble Justice Deshpande in this case considered the Judgment in *Ravindra's* case not binding as it was 'removal per incuriam' because the decision was considered given "in ignorance or forgetfulness of some inconsistent statutory provisions or of some authority binding on the court concerned, so that in such cases some part of the decision or some step in the reasoning on which it is based is found, on that account to be demonstrably wrong". In *Sanghavi* the petitioner challenged the selection of one Dr. Bharati in the reserved

category because one Dr. Baitule, another VJNT applicant was selected in one of the two open category posts in M.S(Orthopaedics). There were 2 open category posts — one post reserved for OBC and one additional post created and marked for SC category. The petitioner's plea was that since Dr. Baitule, a VJNT candidate was already selected in the open category there was no legal validity in selecting another VJNT candidate in the reserved category because it would become then an excessive reservation attracting provision of Art.29(2) of the Constitution.

Whereas petitioner in this case relied on decisions in *Puppala*¹³; *Partha*¹⁴; *Anil*¹⁵; *Dhote*¹⁶ and more specifically the decision of the five judge Full Bench of the Bombay High Court in *Sunanda v. State of Maharashtra*,¹⁷ the respondent relied on the decision in *Ravindra*. The court rejected the authority of *Ravindra* as mentioned earlier and argued that *Ravindra's* decision was based on wrong legal proposition of *Mathew* holding that 'reservation' was a right of the group. Reservation under Art. 15(4) was merely an enabling provision under which State was entitled to make special provision for socially and educationally backward community, scheduled castes and scheduled tribes. The court also thought that *Ravindra* was based upon a wrong appreciation of *Balaram*¹⁸. In *Balaram*, the Supreme Court of India had held that it was the duty of the Government 'to review the question of reservation' for backward classes because 'backwardness' was a constantly changing phenomenon, and not a fixed notion. In that connection that Court opined in para 100 of the Judgment;

" If a situation arises wherein the candidates belonging to the groups included in the list of Backward Classes, are able to obtain more seats on the basis of their own merit, we can only state that it is the duty of the Government to review the question of further reservation of seats for such groups. This has to be emphasised because the Government should not act on the basis that once a class is considered as a backward class it should continue to be backward for all time".

The misconception about some of the statements in the Judgment arose on the summary statement by AIR on para 100 of the Judgment in its Note No.G. starting with statement that "Admission to the reserved seats of Backward Classes is not affected by some of the candidates belonging to those classes getting admission on their merit". The fact is that in para 100 the judgment has only noted the said statement of the judgment in *Mathew* by the learned judge of the Kerala High Court.

The Supreme Court in the same para has also noted the decision of Andhra Pradesh High Court in *Puppala*.¹⁹ In *Puppala* the rationale of the decision has been explained, by stating that candidates from backward classes could not be rejected above the reserved quota if they secured the seat by merit because that would infringe their right under Art.29(2). On the other hand if they were allowed to keep the reserved quota also, it 'would cause great hardship to the boys of other communities'. So the court tried to conciliate between the two and held that both the interests could be protected by "pooling all the candidates together and guaranteeing minimum seats for those belonging to the backward classes". The same principle was followed in *Partha*,²⁰ *Dhote*²¹ and *Anil*^{21A} cases. In fact, in *Dr. Sanjay Manmal Sanghavi V. State of Maharashtra*²² we find the reflection of the same logic and the decision was given in the same above tradition.

So two Division Bench decisions of the same Bombay High Court did make the conflict crystallize further. The two principles involved are:

- (a) Reservation may be a minimum assurance programme, or
- (b) Reservation may be a separate additional programme.

In the minimum assurance programme, all candidates are allowed to compete merit and in the context no discrimination is to be made. If any community due to its social and educational backwardness is unable to compete with other communities a minimum number of seats are ensured to its candidates irrespective of the performance of the candidates. But any number of candidates of a backward community can secure seat on merit. In case it is found that the community can secure as many seats as are reserved for it or even more by open competition on merit, there is no necessity of allowing any further reservation for the community. In *Balaram*²³ the Highest Court of the land had only expressed this opinion.

The other alternative is an additional programme. Under this programme candidates of the reserved category of population are allowed to compete in the open seats on merit and secure any number of seats. That has nothing to do with the reserved quota. The reserved seats can be additionally claimed by the candidates of the backward community by those who are unable to compete in the open merit. Thus if we do not presume that 'backwardness' is an incurable socio-cultural phenomenon, candidates of these communities can secure a large portion of the seats if not all. At least theoretically it is possible. In that case other communities may be hit back with historical vengeance.

If a conciliation and consensus model of social reform is the main objective, the first model of reservation is better than the latter method. The latter method is essentially a conflict model in which backward community gets an additional fillip of rapid progress though social tension also increases with it. The conciliatory approach is an attempt of gradual social readjustment and change which is a shade better than a 'status quo' rule of law. The conflict model on the other hand, is a quick method of change-over. It is quite natural that a judicial culture that we are trying to build up in India in the last forty/fifty years or more shall nurture the former consensus model instead of resorting to the conflict process. But it is seen that feeble though, the voice of the conflict process is also visible in our Judicial Process. *Mathew* or *Ravindra* is therefore not any isolated affair. It is an approach to appreciate the policy of reservation from the point of view of State's responsibility. As such, reservation is seen as a right not as a mere enabling provision. A severe critique on *Ravindra* in *Sanghavi* is, therefore, a calculated attempt of discrediting the alternative conflict model.

One of the fundamental errors of constitutional provision about 'socially and educationally backward community' needs a close look. A community which is socially backward need not necessarily be educationally backward or vice versa. Tagging these two as common criteria of reservation gives the leverage for judicial review and a right to the judiciary to minimize 'reservation' instead of widening the criteria for social change, as we have seen in *Raghuramulu*^{23A} to *Anil*^{23B}

(iii) Sub-group Versus Separate Reserve Category interest

This was the issue raised in *S. Ramesh and others v. The Selection Committee for Admission to MBBS Course, Bangalore and others*²⁴. Seats reserved for SC, ST and OBC were further sub-divided for B.Sc group and PUC group in each reserved category. One of the B.Sc seats was not filled up in the S.T. category for want of any candidate. Two students topping the lists of PUC (ST) category and B.Sc (SC) category respectively contested for admission to the same seat. The Court held that seats reserved for a specific reserved category should remain, as far as possible, within the said category. So in the absence of a candidate in one sub-group of a reserved category, the seat must be offered to candidates from another sub-group of the same reserved category. A seat which was marked for B.Sc. candidates of the S.T. reserved category, should be offered to the PUC candidates of the S.T. category and not to the B.Sc. candidates of the S.C. category.

(iv) On reservation for candidates unsuccessful in previous Admission Test

The Government of M.P. did change the rule of admission into the engineering courses in 1989 stipulating that candidates securing less than 25% marks in English would not be declared disqualified as was the earlier rule. During 1989 admission test it was notified that candidates securing higher marks in Physics, Chemistry and Mathematics together in 1988 test than the candidates in 1989 test would be admitted. It was rightly held in *Manoj v State of M.P. & another*²⁵ that reservation made in favour of the failed candidates of the earlier year and exempting them for appearing in the admission test of the current year, was a hostile discrimination and gross violation of the equality clause under Art. 14.

(v) Some micro-issues of preference & reservation

(a) Reservation of seats for employees of University and their wards was declared as unconstitutional.²⁶

(b) Rule 3 of the M.P. Rules for admission into postgraduate medical courses allowing only the children of the State Government employees and All India Service Officers borne on Cadre of State who had been deputed outside the State was declared unconstitutional and violative being discriminative of Art. 14.²⁷

(c) Cent percent institutional reservation in the merit quota 1 was held to be violative of Art. 14.²⁸

(d) Rule 8.5 of the said M.P. Rules providing additional 10 marks with the total marks secured in the qualifying examination for participating or representing the institution in the inter-university events, whether games or sports or cultural activities, was held to be arbitrary. Similarly allocation of marks for NCC certificates was also held to be arbitrary.²⁹

(e) Addition of 10 additional marks for securing distinction marks in each subject was declared as highly illogical and arbitrary. "There was no rational basis for this weightage since a candidate securing distinction already has edge over others by his/her superior performance".³⁰

(f) Rule 9.5 (a) and (b) of M.P Rules providing for weightage of marks to Assistant Surgeons on the basis of rural service was held as arbitrary.³¹

(g) Rule providing for deduction of 15% of minimum pass marks for each extra attempt and Rule reducing minimum qualifying effective percentage of marks for various subjects of studies in postgraduate course were held to be arbitrary.³²

(h) Rule for the merit list to be valid only upto 31st December of respective year specially when English Calendar year was not an academic year, was declared as arbitrary.³³

(i) A uniform policy at the State level for admission into the postgraduate medical courses was suggested by the M.P. High Court following the suggestion in *Pradeep Jain's case*.³⁴

References

1. *Balaji v State of Mysore* AIR 1963 SC 644

If a provision which is in the nature of exception, completely excludes the rest of society, it would be beyond the scope of Art. 15(4). Hence the reservation of 68% is plainly inconsistent with Art. 15(4).

2. AIR 1980 SC 820 at 834

3. AIR 1971 SC 1762

4. AIR 1987 SC 2396

5. *Chitralekha v State of Mysore* AIR 1964 SC 1823

6. *Rajendran v State of Madras* AIR 1968 SC 1012

7. *Jacob Mathew v State of Kerala* AIR 1964 Ker 39

8. *Anil v Dean, Govt. Medical College Nagpur* AIR 1985 Bom 153

9. AIR 1990 Bom 31

10. AIR 1990 Bom 232

11. *Supra* note 9

12. *Supra* No. 10

13. AIR 1958 AP 569

14. AIR 1961 Mysore 220

15. AIR 1985 Bom 153

16. (1967) Mah.LJ 915

17. Sp. Civil App No. 1372 of 1977 (unreported)

18. AIR 1972 SC 1375

19. *Supra* note 13

20. *Supra* note 14

21. *Supra* note 16

21A. *Supra* note 15

22. *Supra* note 10

23. *Supra* note 18

23. A. AIR 1958 AP 129

B. *Supra* note 15

24. AIR 1990 Kant 36

25. AIR 1990 MP 5

26. AIR 1990 NOC 107 (P & H)

27. AIR 1990 MP 173

28. *ibid*

29. *ibid*

30. *ibid*

31. *ibid* also AIR 1986 SC 1877; AIR 1984 SC 1534, AIR 1989 J&K 37

32. *ibid*

33. *ibid*

34. *ibid* See also (1987)4 SCC AIR 1984 SC 1420

EDUCATIONAL TELEVISION IN INDIA

D. R. Goel*

Kiran Jaiswal*

Educational Television (ETV) in India cuts across all the levels, pre-primary, primary, secondary, higher secondary, undergraduate, postgraduate, and continuing. Also, it takes various forms, such as, informal, non-formal and formal. Post-SITE (Satellite Instructional Television Experiment) Educational Television programmes for children in the age ranges (5-8) years and (9-11) years developed at UDKs (Upgrah Doordarshan Kendras), namely Delhi, Cuttack, and Hyderabad are beamed for the children at Jaipur, Raipur, Muzaffarpur, Sambalpur, Hyderabad and Gulbarga.

The ETV programmes for children produced by Central Institute of Educational Technology (CIET) of the National Council of Educational Research and Training (NCERT) are telecast through INSAT-1D for children of age ranges (5-8) years and (9-11) years from Monday through Friday and for school teachers on Saturdays. These programmes are telecast in different States, namely, Maharashtra, Andhra Pradesh, Orissa, Uttar Pradesh, Bihar, Gujarat and Madhya Pradesh. The Ministry of Human Resource Development through the NCERT is the main agency to coordinate the planning and production of the ETV service under INSAT. Doordarshan has been producing these tele-teach programmes till now. But in view of their increased requirements, it has been decided that the Ministry should take over their production. The Ministry of Human Resource Development and Doordarshan are producing educational films on a 50-50 basis for the INSAT educational television service. Keeping this in view the Ministry of Education at the Centre is going ahead with the setting up of their own separate TV studios and other production facilities in the CIET (NCERT), and in each of the seven States under the INSAT scheme.

CIET of the NCERT, New Delhi, is producing Massive Teacher Education ETV programme for the orientation of in service teachers, which are telecast during summer vacation.

Syllabus based lessons for school students at

**Institute of Education, Centre of Excellence, Devi Ahilya Vishwavidyalaya, Indore-452 001 (India)*

primary/secondary levels are telecast by Doordarshan Kendra (DDK) Delhi, Bombay and Madras under the School Television (STV) programmes for children. The enrichment type of programmes are also televised by these Kendras as well as Srinagar and six UDK transmitters – Jaipur, Raipur, Muzaffarpur, Sambalpur, Hyderabad and Gulbarga.

DDK Srinagar is telecasting one programme for the university students per week which is enrichment type. DDK Bombay and DDK Pune are telecasting 'Gyandee' programme for the adults

The Countrywide Classroom programme (CWCR) is sponsored by the University Grants Commission (UGC). The aim of the project is to improve the quality of university level education. These programmes are targetted primarily at the undergraduate students especially studying in small towns located in rural and semi-urban areas. The programmes also serve the teachers in higher education to enable them to teach more effectively.

These programmes are produced at the UGC Media Centres, namely, Educational Media Research Centres (EMRCs) located at Ahmedabad, Hyderabad and Pune, Mass Communication Research Centre (MCRC) located at Jamia Millia Islamia (JMI), New Delhi, Audio Visual Research Centres (AVRCs) located at Calcutta, Hyderabad, Jodhpur, Madras, Madurai, Roorkee, Srinagar, Patiala, Imphal and Indore. It is under UGC – INSAT TV project undertaken by the UGC, New Delhi. Some facilities for TV programme production have also been developed in the Technical Teacher Training Institutes (TTTIs). The functions of these institutions are producing audio-visual materials, training of manpower, development of audio-visual materials, researching on audio-visual materials and instruction.

UGC has established thirty six Curriculum Development Centres (CDCs) related to undergraduate level subjects. These CDCs are geographically distributed all over the country. In fact, thirty six universities were directly involved to strengthen the college level curriculum. Each CDC has a coordinator who involves a dozen or more experts of the subject with a view to

modernise the curriculum for the Indian universities. In continuation to the scheme of CDCs, the UGC has taken another major step in the production of video-materials related to the subjects of undergraduate level. As many as sixteen different subjects have been identified in the first instance. The subject coordinators examine the curriculum produced/developed by CDCs, and identify experts and departments in the country so as to produce subject related video-scripts. These video-materials are related to all the three levels, i.e. the 1st year, 2nd year and 3rd year of degree course. Video-materials for each subject are produced under this scheme. This production programme is one of the major thrusts. However, the country has yet to develop experience, expertise and strategies so as to produce excellent quality programmes.

The Indira Gandhi National Open University has started telecasting its educational programmes since 20th May, 1991. These programmes aim to supplement the printed material already sent to students. The target viewers of these programmes are, out of those registered for university's courses. The university has around 1,12,000 students registered for its various programmes, who receive counselling at 170 study centres, coordinated by 16 regional centres, viz. Hyderabad, Patna, New Delhi, Ahmedabad, Haryana, Shimla, Bangalore, Cochin, Bhopal, Pune, Shillong, Bhubaneswar, Jaipur, Madras, Lucknow and Calcutta. The university has a production unit at Tughlakabad and a post-production centre in the campus at the Maidan Garhi, both in Delhi.

Effectiveness of ETV for Children

It is evident through the studies conducted by Jaiswal, K., (1988) and Doneriya, A., (1988) that the content and presentation of the Science ETV and General ETV programmes for the children were quite suitable with respect to most of the dimensions. A large number of these programmes were presented well. The gain of the students in Science ETV and General ETV programmes was significant. The children were found to have positive reactions to the Science ETV and General ETV programmes.

Effectiveness of School Television (STV) Programmes

Sudame and Goel (1984) conducted a study on the utilisation of School Television Programmes in five schools of Greater Bombay. It was found that the STV programme viewing facilities in most of the schools were inadequate. There was a problem of multi-sections in a standard. None of the schools was found to have more than one TV set. A single TV set could not

accommodate the large number of students. The school teachers were not trained in using STV programmes for classroom instruction. Pre-and Post-telecast activities were not carried out by them. The STV programmes on Science were in Marathi only which did not suit the multi-lingual population of cities like Bombay. The STV programmes in English were found much below the levels of English medium students. Even then the programmes on Science could be well utilised by the Marathi medium schools. The programmes on English could be utilised by the non-English media schools. The study made a suggestion to explore why the existing facilities were not utilised or under utilised.

Effectiveness of Countrywide Classroom Programmes

Doneriya, A., (1988) studied the General ETV programmes. The study concludes that in most of the programmes the post-test scores of both the English and Hindi medium students were significantly higher than their pre-test scores. There was no significant difference in the effectiveness of Indian and imported programmes.

The study conducted by Jaiswal, K., (1991) on ETV suggests that the objectives of the CWCR programmes should be clearly enunciated. The programmes should be more motivating, intelligible and reflective. The content volume should be in proportion to the time available and the level of students. The contents should be well sequenced and the individual teaching points should be dwelt on adequately. Every attempt should be made to shoot the natural reality. Even when the pictures, models, mock-ups, and diagrams etc. have to be inducted they should look like natural. Audio-visual ratio could be optimum, say, usually 1:3. More attention could be given at times to the colour-hue, brightness and saturation depending upon the view plot and theme. View composition could be more balanced focussing on what was required rather than bringing in unwanted visuals or voice or neglecting or less emphasising what was required. The size and font of captions should be optimum and in a suitable colour contrast so that it is clearly visible. The contents should be communicated through suitable media.

The Programmes should be such that they are meaningful to multilingual, multicultural, multilevel undergraduate population of India. The exposure time on the TV screen should be tuned to the viewing speed of the undergraduate students. The transition from one shot to the progressive shot should be quite smooth and sharp. Still there could be variety in the formats of the programmes. Many more formats such as, problem

solving, project, sensitivity training, quiz, laboratory, heuristic, scientific inquiry, and interaction etc. could be inducted. Rather than solo presentation efforts should be made to make them illustrative and interactive because of the simple reason that the interactive programmes very often result in better reception. Different teaching maxims could be more carefully identified and applied. Skills of probing questioning and reinforcement could be more thoroughly integrated.

The CWCR Science ETV programmes (98%) on Biology, Chemistry, Physics, Computers and General Science were found effective for students. In some of the programmes (30%) there was no significant difference in the achievement of the English and Hindi medium students. It may be because TV is an audio visual medium. The visual stimuli support the audio stimuli or the language of delivery and compensate for the language lag. Otherwise also, TV is more of the video medium and visuals have their own language which is universal. In a large number of programmes (60%) there was significant difference in the achievement of the English and Hindi medium students in favour of the English medium students. It may be because the telecast is in English language. In some of the programmes the level of the language used was quite high, speed of delivery of the programme was very fast and the accent and articulation strange. The mean gain of Hindi medium students in some of the programmes (10%) was higher than that of the English medium students. It may be because of the low level of previous knowledge of the Hindi medium students as compared to that of English medium whereas there was no significant difference in their post-test scores.

One of the problems is how to ascertain the profiles of undergraduate students all over the country and even if ascertained how to match the CWCR programmes to their masses. It can be realised to a large extent by designing such programmes which cut across a variety of cultures through varied inputs, such as, illustrations, languages, and contents at different levels.

Some of the programmes are very well designed and produced, but still they are underutilised or not utilised.

Can the CWCR programme convince the college and university administrators and teachers of its potency, so that the programme is accepted and integrated with the institutional schedules? Can the CWCR programme improve upon its contents and presentation, so that, it is more suitable, appealing, and effective? Could education as a system be more resourceful so as to utilise the strengths of educational resources like CWCR programmes?

There is reasonably adequate hardware expansion in India in terms of TV stations and receive-cum-relay transmitters but the rate of production of software is comparatively slow. There should be more centres like EMRC, AVRC and more infrastructural facilities be provided at the TTIs, so that, the rate of production, and quality of the CWCR programmes is improved. Also, the INSAT-TV project centre, JMI, New Delhi – the interface between the producers and target users should be more resourceful so as to mediate properly.

The basic difficulty in designing, development and production is that content experts, pedagogists, TV talent, and technical producers usually exist in isolation. A content expert may not be a pedagogist and vice versa. A TV talent may not be content expert but media specialist. A technical producer may be merely hardware specialist. Now the objective is how to have interdisciplinarity, or multidisciplinarity with adequate interaction. There is a need to enrich and expand the Countrywide Classroom programme, so that it is more credible and useful.

Effectiveness of IGNOU ETV Programmes

Goel & Jaiswal (1991), conducted a study – IGNOU ETV: Pedagogical analysis. The study reveals that these programmes are quite effective, but still there is a scope for improving upon the quality of these programmes. Mostly these programmes are beamed in English and a few in Hindi. According to the aims of IGNOU ETV, as the programme is for multilingual groups, the medium of instruction should be such as is intelligible to all. Due weightage could be given to all the courses which can be mediated through television. The content volume is well in proportion to the time available and the level of the viewers. The contents are well sequenced and the individual teaching points dwelt on adequately. Different teaching points are treated optimally. The transition from one shot to the progressive shot is quite smooth. The music is such that it helps concentrate and contributes to the understanding of subject matter. View composition is quite balanced focussing on what is required. More programmes are needed at concept and rule levels. Skills of probing questioning and reinforcement could be more thoroughly integrated. The variety of teaching aids are used optimally. Still there could be variety in the methods and formats of the programmes. The IGNOU ETV programmes are quite appreciable and appealing. So, the frequency of the IGNOU ETV programmes may be increased.

Concluding Remarks

It is evident through the studies presented above that

the children of (5-8) years and (9-11) years gain significantly through the ETV programmes for children produced by the CIET of the NCERT. The children were found to have positive reactions towards these programmes. The School Television programmes for primary, secondary, and higher secondary level students produced by different terrestrial centres, namely, Delhi, Bombay, Madras, and Srinagar, though usable, are unutilised or underutilised. The CWCR, and IGNOU ETV programmes for undergraduate students are found quite effective irrespective of their medium of instruction, and production location, that is, native or imported, or mode of presentation direct, simulated talk-back or interaction. Thus, the effectiveness of the ETV is established.

The Educational Television programmes can be very well designed and produced for all levels corresponding to the profiles of the target viewers, whether they are children or aged. There is a remarkable development of ETV programmes over the previous few years. Progressively the programmes are becoming more interesting, appealing, and usable.

The IGNOU ETV at present is, perhaps, quite intensively utilised by the undergraduate viewers in India. How? Is it because of the transmission time (6:30 AM to 7:00 AM) suitability? Is it because of the need based

programmes? Is it because of the content and quality of the programmes? There may be many varied factors promoting these programmes. The organising agencies have to be very conscious of the telecast time, content, quality, and suitability of the ETV programmes. Also, we have to be very clear about the contents which have to be covered through ETV at the regional level through terrestrial station and which have to be covered at the national level through the satellite. The different agencies telecasting programmes at the same level should coordinate optimally so as to share the load without any duplication. The country has high hopes with educational media like TV.

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What Is Wrong With Our Education?

A. P. Sharma*

Rousseau once reflected : 'if you wish to know what is meant by public education, read Plato's Republic. Those who merely judge books by their titles take this for a treatise on politics, but it is the finest treatise on Education ever written'. Plato's main educational objectives did not differ from those accepted in early Athens or Sparta. He aimed at 'good citizenship'. He thought that competence in civic affairs was of prime importance. One could attain citizenship if one knew the proper system of values, possessed profound knowledge and understanding which would lead to wisdom. All that could be achieved only through education.

Plato strongly believed in the 'principle of reflection', which meant that the 'vision of truth and goodness, in fact, was already in us but it was largely a question of the teacher helping to turn the eye of students inward, towards the light'.

Almost two thousand years after Plato, Swami Vivekanand said in a similar vein: 'Education is the manifestation of perfection that is already in man.' Vivekanand's entire scheme of education is based on the values of truth directed towards self-realisation. Vivekanand thought that education should aim at reforming the human mind, produce men of integrity, clean administration and socially conscious citizens rather than stuffing some facts into the brain.

Quite contrary to Plato's vision and Vivekanand's dream the meaning of good citizenship seems to be taking entirely a different shape in modern India. The precept 'simple living and high thinking' is being replaced by 'rich living and thinking for the good of the self only' which means narrowing down the vision of thought to the fulfilment of the selfish desires of the individual.

The Utter Bewilderment

Recently I visited one of the leading universities in Rajasthan in connection with delivering Talks on Value Education to the young associate professors of the university. During the discussion hour most of them disclosed their disappointment in retaining the old values i.e. Truth, Beauty & Goodness (*Satyam, Shivam & Sunderam*), and narrated a good number of incidents

which reflected how the educated elite and experienced professors of university were prone to malpractices and had departed from the established moral norms.

From the 12th century A.D. when the universities of Bologna and Paris were established in Europe till today, universities have always been reckoned as the seats of learning where not only knowledge but the best human qualities are infused into the youth. But the dismayed young university professor of today is greatly baffled and utterly confused on the moral issues. Does it mean that the old values are totally out of place in the present context? Or some new values have emerged during the second half of this century as it is during this period that most of the established norms seem to have been eroded from the scene. Whether values are not being perceived in the right perspective or they have eroded from the society, one thing is clear that the number of persons who now believe in the so called new values, has tremendously increased in the modern times. The definitions of honesty, sincerity, dutifulness, devotion and identification, have been redefined and perceived in a narrow sense which perfectly suits the beholder's needs. What is going to happen in the future cannot be predicted accurately today, but until the newly discovered norms do not give us good results i.e. prosperity, economic salvation, growth and freedom etc., such values cannot be accepted. The Pragmatic point of view is that 'Truth is the cash-value of an idea'. If the newly discovered values do not lead us to become good citizens, can we reckon them as good human values?

Education is a potent media to propagate values and mould human beings into good citizens. But the present turmoil in the society, that is separatists' movements, daily murder of innocent people, lack of adequate knowledge and culture among our youth, have some relevance to our faulty education system. Formerly we blamed the Britishers for developing white collar culture and for providing unsuitable education but whom should we blame today when, after 43 years of independence, so many new laws have been enacted and new educational policies have been framed to improve the system—yet the system is gradually sinking and deteriorating. There is no field of work where corruption is not rampant. Even our political leaders¹ have acknowledged it in public that the roots of corruption have gone many fathoms deep in the society in the past

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few years. Who is at fault then? Political leaders, administrators, teachers, doctors or who? Perhaps we all are at fault but if we look at our system of education dispassionately we find that in spite of our best intentions we have not been able to do much good to it and as a result cumulatively the value system, the ideals of dutifulness, devotion, honesty, etc. have gradually dissipated.

The Primary Causes of Failure

Without going into the causes relating to pedagogical pitfalls² which are quite effectively instrumental in not transmitting good education, I would like to mention a few potent causes which have been constantly influencing the realm of education negatively after the independence³.

1. Political Influence

Immediately after the country got freedom the new government at the centre decided to redirect the educational system into an indigenous system so that it could be useful to all—the rich and the poor. Consequently new Commissions were set up and new ideas were put into gear to reactivate the almost obsolete system of education. The political leaders, who had taken active part in the country's independence movement, had a conviction that through reshaping the educational system and by boosting technological education, the growth of industry could be accelerated. New commissions constituted one after another outlined new objectives to bring desired changes in the educational system, but when the dust settled down, nothing much seemed to have been accomplished as the political leaders did not have time nor the will to pursue the implementation of new ideas put forward through new commissions. For example, many new ideas placed by Dr. Zakir Hussain, Dr.D.S.Kothori and National Educational Policy of 1986, have not been accepted throughout the country at different levels of education in all the States. Therefore, the aim of 'good citizenship' which was envisaged earlier by our freedom fighters & politicians, has been lost in the oblivion.

(i) Government Institutions

Political influence can be traced on the government, semi-government and private institutions in many ways right from the time the country became independent. The government institutions, both at school or college levels, have never been free of political influences which can be traced from teachers' appointments, transfers, placement and promotions etc. It is a matter of great concern that favouritism and irregularities are commonly perceived in the government institutions includ-

ing universities. How can then the administrators have a free hand in solving educational problems? In want of freedom to the administrators and heads of institutions, nothing much can be accomplished even if the Planning Commission has proposed so many things to implement.

(ii) Private Institutions

The semi-government and the private institutions are no more immune to the political influence. The institutions which are aided by the government and those which do not receive any aid, are subject to severe political influence in terms of financial assistance, introducing new subjects, physical facilities, students' intake policies, benefits of scholarships and travel grants to students and teachers, including teachers' appointments etc. All these matters are controlled by the senior government officials who mostly work in line with the desires of the politicians in power. Such political leaders' main concern is to abide by the party's interest and therefore public interest is always in jeopardy. Besides, the owners of private institutions, who are mostly endowed with various personal objectives such as 'money making & self gratification', are hardly concerned with the proposed educational or national objectives. Consequently such institutions often suffer from bias, bureaucracy, lack of democratic traditions and nepotism, and exercise tyrannical administration.

2. Lack of Awareness Towards Education

It is a matter of great concern that even after 43 years of our independence in most of the States in the country educational and literacy growth have not reached a mark of satisfaction. Leaving a few States in the south, almost all the States do not have even 50% literacy which again is far less in women than in men. Although the new National Policy of 1986 lays a great emphasis on the literacy programmes, such as adult education and non-formal education, most of the government funds are either wasted or utilized by the senior government officials, Sarpanchs and block development officials in a manner which does not benefit the common man. Therefore, after four decades of our independence proposed literacy programmes, though well planned on paper, have been adversely affected and very little growth in educating the adults and parents has been achieved. This is one factor of lack of educational awareness. But poverty, abundant growth in population and lack of physical facilities⁴ and poor output by teachers in most of the professional institutions, have further added to that unawareness. How can we expect a desired development in education when a large population of a country like India has no awareness towards the benefits of education?

3. Inadequate Role of the Media

The role of television, newspapers and radio in boosting or circumscribing educational growth can never be under-estimated. In the developed countries of the world, media has been playing a big role in the advancement of education. There, distance educational programmes projected through radio and television have been helping in educating people. First of all things of that nature have started very late in our country. Besides, except U.G.C. programmes which are televised during odd hours of the day, not much has been projected through the television, which could be helpful to educate our illiterate adults. Both radio & television have often been projecting either entertainment oriented programmes or the themes containing murders, sex and love. Televising themes such as Ramanaya or Mahabharat, which would have an excellent moral impact on every kind of people, have not been witnessed often. Neither the media has been free from the political influence. Therefore our media has not been as potential in the educational growth as it should have been.

4. The Role of Religion & Social Agencies

Family, the smallest unit of a society has always played a great role in implementing moral & religious values as well as providing awareness towards such issues. Likewise other social agencies comprised of the elders of a village or a town have generally been instrumental in inculcating values among the youth. But after Independence, with the growth of industry and employment opportunities, most of the educated parents in the town have either very little or no time for their children. People in the villages are indeed baffled by the scientific and material developments. As a result they are comparatively more busy than they used to be in the past when they had plenty of time to tell religious stories to their children. Therefore, the goal of good citizenship is gradually left or forgotten.

The Epitome

Perhaps there may be more reasons of failure of our educational system than what has been projected in this small article, but a colossal failure of education in terms of implementing values of honesty, sincerity, dutifulness and discipline, is being witnessed far and wide. There is no field of public life and service where the balance is not inclining towards dishonesty, lack of interest towards work and desire to fulfil selfish interests. It is a great pity that our youth is gradually drifting towards Satanic values and the society at large is getting distorted and devalued notions are rapidly getting into the minds of people. The pace of such a chaotic growth is

so rapid that by the advent of the 21st century we may step down to the realm of a lost paradise where evil will rule devoid of the vision of Truth, Beauty and Goodness.

Is there any solution to such a wide spread problem? Can we even see the truth that we are not what we should have been? Can we reverse the gear and put our house in order? Yes, we can, but it is the politicians who first need to withdraw from the temptations of gratifying their own selfish interests. Who next then? Surely the older citizens who are responsible for the country's future, and whose duty is to resist the evil and propagate and practice what is good only. Then it is the youth who must transcend from the ugly situation. I believe all that has been lost can be restored if we can free our education from the unwanted political influence, eradicate corruption from the administration and make education pragmatic. Education cannot live only in the minds of people, it must be put to work – real and honest work.

Notes

1. Late Shri Rajiv Gandhi during one of his public speeches at a place in Rajasthan acknowledged, that corruption was rampant among the government machinery and only a very meagre portion of the total help reached the needy people.
2. These pitfalls can be either faulty syllabi, obsolete teaching techniques, poor quality of teachers, lack of good text books and other teaching material, including inadequate physical facilities etc.
3. The causes of failure have been summarised out of the responses gathered from informal interviews of 50 educationists belonging to different fields of education.
4. In the States like Rajasthan, at many places, primary schools are situated 10 to 15 kilometres away from the village(s) even after 43 years of country's independence.

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REGISTRAR

PM Stresses Value Education

The Prime Minister, Mr P. V. Narasimha Rao, called upon students and the teachers to strive to achieve a harmonious synthesis between traditional human values and acquisition of modern scientific knowledge in their academic pursuit. He was delivering the convocation address at the Sri Sathya Sai Institute of Higher Learning at Prashanti Nilayam recently. Mr Rao said there was need to transform higher education system and invest it with these time-honoured values. There was more knowledge in this world than was available in the books and, therefore, inculcation of these values becomes meaningless if they remain pious precepts without actual practice.

Reiterating his Government's commitment to the National Educational Policy of the mid-eighties, which he had shaped as the then Minister for Human Resource Development. Mr Narasimha Rao said these values were all the more relevant in the context of growing social tensions and the increased strain on traditional values.

He was happy to know that against the prevailing bleak scenario, the Sri Sathya Sai Institute of Higher Learning offered a glimmer of hope for the stress it laid on these ancient values. He suggested to the Union Minister for Human Resource Development, Mr. Arjun Singh, to see how best the experience gained at the institute could be replicated countrywide.

Sri Sathya Sai Baba, who is the Chancellor of the Sri Sathya Sai Institute, conferred degrees and doctorates on the students and

delivered benediction to the gathering, in which he urged the students to blend knowledge with human values. Character was more important than acquisition of knowledge and that a man who lost his character and righteousness was no better than a beast, he said.

He regretted that as years rolled by, there was only quantitative growth in the field of education to the detriment of qualitative development. Education institutions — abodes of Goddess Saraswati — were fast turning into Abodes of Goddess Lakshmi, what with unscrupulous commercialisation. It was well known that the two could never co-exist. He wondered what use was education if it did not help national integration and unity. The country could only achieve independence, but not unity.

He called upon the students to appreciate that education is for life and not a living and that education should aim at shaping the student into a complete ideal being.

Media Institutions' Accreditation Mooted

A two-day Indo-United States conference on journalism education held in New Delhi recently has recommended that an apex body at the national level known as "The Indian Council of Journalism and Mass Communication Education" should be set up to accord professional recognition to universities and institutions offering professional courses in the media.

Sponsored by the Press Informa-

tion Bureau and the Indian Institute of Mass Communications in collaboration with the Indo-US sub-commission and the United States Information Service (USIS) the conference was inaugurated by wellknown film personality Girish Karnad, who is co-chairman of the joint Indo-US media committee. The principal information officer, I. Ramamohan Rao, presided. The conference was attended by over 30 Indian experts in journalism education and some American experts.

The group on accreditation headed by Mr. Viswam recommended that the apex Indian Council of Journalism and Mass Communication Education will in no way interfere with the role of the University Grants Commission or the universities. Universities and other institutions may voluntarily seek recognition by it.

The group also said that the apex body will stimulate and encourage sound programmes of education in Journalism and Mass Communication.

The group on curriculum headed by professor Basheeruddin recommended introduction of communication and journalism as one of the subjects at the undergraduate level in universities and suggested that universities may also introduce honours, M.Phil. and Ph.D. courses in communication and journalism.

The committee on training of journalism faculty headed by Mr. K.G. Joglekar emphasised the need for members of the teaching faculty for journalism to have some years of experience as working journalists, and to continue gaining such experience to keep in touch with the

latest developments.

Mr. Karnad in his inaugural address had noted that the Press had become part of the sub-commission only in 1986, since the subjects in mass communications earlier covered were cinema and television.

In his presentation, Professor Eapen stressed the need for standardisation in courses and said the language—Hindi, English or any other—was not being given adequate attention.

Mr. S. Nihal Singh wanted greater interaction between successful journalists and journalism schools, while Mr. Viswam drew attention to poor text books.

Use of PCs & CDS/ISIS in Library and Information Environment

Institution of Information Technology (INFOTEK) recently organized a workshop on "Use of Personal Computers & CDS/ISIS in Library and Information Environment" at National Institute of Port Management (NIPM), Madras. Co-sponsored by Department of Scientific and Industrial Research (DSIR), New Delhi, under its NISSAT programme and NIPM, Madras, the workshop was inaugurated by Dr. M. Santappa, Scientific Adviser, Tamil Nadu Pollution Control Board.

While welcoming the participants, Dr. V.A. Kamath, President, INFOTEK, enumerated the professional work so far done by the INFOTEK. He also outlined the workshop theme and the programme of training. He further traced the developments taking place in high technology areas such as computer, telecommunication, micrographics etc. in India and abroad. He emphasized the need

for adequate number of trained computer professionals to meet the challenges posed by many networks come into force or being planned in our country such as NICNET, INDONET, INFLIBNET, CALIBNET, MALIBNET, DELNET.

In his inaugural address Dr. Santappa mentioned that the advances in telecommunication and computer technology were converging quickly towards the new era of information generation, information consolidation and information dissemination. He stressed that today's information users could not afford to watch the revolution in information technology from the sideline without fully participating and harnessing the technology for all their tasks. Need of the hour of library professionals, he said, was to learn computer application, software utility, particularly CDS/ISIS supplied by UNESCO and distributed by NISSAT.

Dr. A. Balraj, Chairman, Madras Port Trust in his presidential address, expressed the need for computerization of all Port Libraries and proposed to have a Port Library Network for India.

The workshop participants were given theoretical exposure with practical training on Personal Computers on the following topics: Computer Systems; MS-DOS; CDS/ISIS Structure and function; PASCAL interface; and advanced features of latest version of CDS/ISIS.

The participants were assigned project work on the following topics: Database creation of 1) Book Catalogue; 2) Periodical Holdings; 3) Weekly Display of current periodicals; and 4) Directory of workshop participants. The participants were grouped into four teams and each team had created the databases and submitted their reports. They were also given an

evaluation questionnaire for evaluating the workshop. They provided feedback on the workshop.

Mr. M.N. Seetharaman, Librarian, IIT, Madras delivered a lecture on "Data communication with special reference to online search and retrieval. M/s Informatics India (P) Ltd, Bangalore, arranged for demonstration of online and CD-ROM search for the participants. Mr. R. Vengan, Deputy Librarian, IIT, Madras gave a technical lecture on "CD-ROM Technology".

Funding Technical Studies & Research

The All-India Technical Students Association has demanded the setting up of a financial institution fully owned by the Government to safeguard interests of professionals and protect their rights.

At the first annual convention held in New Delhi recently, the association sought financial aid to the professional students after completion of their studies so that they could start their own business rather than seek jobs. The second demand was for provision of educational loans whose repayment ought to begin after completion of the course.

The convention of the technical and professional students from all over the country expressed its concern over the inability of the government to either protect their interests or promote their profession. A resolution adopted at the convention said that even now an average of eight students out of 100 got jobs in public or private sectors while 11 out of 100 got jobs in industries or started their own business.

As a consequence, a large num-

ber of students regularly went abroad because they had more opportunities there for research and higher studies. In addition, the study material abroad constantly went through the process of change while nothing has been changed in India for a long time. Hence the association has demanded that a committee be appointed to look into the lapses in the present education system and alter the syllabus to cater to the prevailing needs.

The association also demanded opening of evening colleges so that those who passed their diploma course could get admission in these colleges to get a degree course while in service.

CSIR Golden Jubilee Lecture

Dr Debiprasad Chattopadhyaya, a guest scientist of the National Institute of Science Technology and Development Studies, recently delivered the golden jubilee lecture for the Council of Scientific and Industrial Research (CSIR) in Bombay. In his address he cautioned that India could "relapse into a Stone Age" if the processes that frustrated the growth of science in ancient India were allowed to continue. He said it was clear that India like China played a key role in the development of science.

Indian science could be regarded older than Greek science, but was frustrated by an exploitative class, he said. The ancient Indian "udalaka asruni" of the seventh or eighth century B.C., made major contributions to scientific thinking, long before Thales of Greece.

The regression started around the fourth or fifth century A.D., Dr Chattopadhyaya said. But the beginning of the suppression of science in ancient India dated much

earlier to the era of the "Yajurveda" around 1100 BC.

He said the suppression of science in ancient India had parallels in China where major technological contributions like gunpowder and printing technology remained unexploited for centuries.

"Any efforts to revitalise the old processes that frustrated the growth of science should be resisted," said Dr Chattopadhyaya, calling for major efforts in "thought-reform" of the masses to stimulate the spread of scientific attitude.

Dr Chattopadhyaya has been working on the history of Indian science for more than ten years, and has authored two highly-acclaimed volumes on the history of science and technology in ancient India.

Dr Chattopadhyaya's studies show that the original form of ayurvedic medicine was highly rational. Based on the concept that only four factors determine prognosis: the doctor, the patient, the healing agents and the nursing staff.

His work has also revealed that the concept of atomism which believed that all matter is made of atoms, was a unique feature of the scientific tradition in ancient India that stretched over many centuries.

Fermentation Biochemistry & Biotechnology Research

The Biochemistry Laboratory of Department of Chemistry of the IIT, Madras is engaged in the following research areas :

a) Anaerobic fermentation biotechnology for the conversion of lignocellulosic wastes of alcohol, acids, cellulytic & hemicellulytic enzymes, and the use of mixed cultures.

b) Biotechnology for production

of riboflavin using molasses and oil seed cakes as a B-Complex vitamin enriched poultry and animal feed concentrate.

c) Genetic recombination through protoplast fusion in cellulytic fungi and bacteria for biosynthesis of antibiotics, biocide and extra cellular microbial polysaccharide (xanthan).

d) Studies on nutritive value of fermented foods popular in rural areas.

e) Bio-geotechnology of metals

Generous funds have been made available by the Indian Council of Agricultural Research and the Tamil Nadu State Council for Science & Technology for work on anaerobic biomass conversion and vitamin fermentation.

Some of the special facilities available are: Laboratory scale microprocessor controlled fermentor for scale-up of fermentation; low pressure liquid chromatography system for protein purification; gas chromatographic analyses of alcohols and fatty acids; fluorometric & microbial array of vitamins; lyophilization freeze-drying of microbial cultures & biological samples; trans-UV illuminator for nucleic acids detection; high speed centrifuges, shakers 4-83C walk-in cooler & viscometer.

This laboratory is also linked to the Centre for Bioscience & Biotechnology of I.I.T. Madras.

Consultancy work is undertaken in biocide testing and biodegradation analyses.

Book Development Corpn. Suggested

Mr. P. Rajeshwar Rao, President of the Hyderabad Book Fair Society, suggested that the Govern-

ment should set up a book development corporation on the lines of the A.P. State Film Development Corporation. He was speaking at a function organised in connection with the seventh national book week in Hyderabad recently. He said this would encourage young and upcoming writers and make available books to the book lovers at popular prices.

He said the Government should treat book publishing as an industry so that the publishers could avail of loans from financial institutions and procure paper at subsidised rates. India, which stood seventh in book publishing in the world, had now slipped to the 17th position, he added.

He also suggested that the Government should provide Income-Tax exemption to the purchasers of books as it was about a decade ago. Even concession should be given in the postal and freight charges as per the price of the books.

Coaching Centre for Minority Students

The University Grants Commission (UGC) is reported to have sponsored a coaching centre jointly with the West Bengal government at the Maulana Azad College in Calcutta, to prepare students belonging to the educationally backward and minority communities (Muslims, Neo-Buddhists and others) for competitive examinations, such as Joint Entrance Examinations for engineering and medical colleges, civil service examinations conducted by the State Public Service Commission and examinations held by the Staff Selection Commission, Railway Recruitment Board and the

Banking Service Recruitment Board. Professor Shankar Narayan Sen of the college, is the chief coordinator of the proposed coaching scheme.

According to the Principal of Maulana Azad College, Dr Prasanta Kumar Ghosh, the UGC had agreed to sponsor the coaching scheme in pursuance of the Prime Minister's 15-point programme to help integrate minorities into all walks of national life. Dr Ghosh said that the coaching centre would try to conduct the training classes keeping in mind the requirements for the examinations.

Students belonging to the minority communities have been asked to contact the coaching centre at Maulana Azad College, 8, Rafi Ahmed Kidwai Road, Calcutta-13 on any working day between Monday and Friday at 2.30 p.m. for further information.

M.A. in Cinema Studies

A two year Master's degree course in Cinema Studies is proposed to be started in the Jadavpur University in June-July next year.

According to Mr P.K. Nair, till recently Director of the National Film Archives of India, the course, leading to an M.A. in Cinema Studies, was being started in the light of the clearance given by the University Grants Commission for inclusion of film studies as a subject of university courses. He said some other universities, including Kerala and Bangalore, had evinced keen interest in starting similar courses. The Pune University had also decided to start a one-year post-

graduate course in cinema studies.

Mr. Nair said the syllabus of the course was different from that of the film and television institute as it did not envisage practical training in different aspects of cinematic art. The syllabus deals mainly with the history of cinema, its aesthetics, film appreciation and study of various directors and their techniques.

Plea for Library Legislation

Dr. H.K. Manmohan Singh, Vice-Chancellor, Punjabi University stressed the need for legislation on the public library system in the State in consultation with library experts. He was inaugurating the two-day seminar on "Public library system in Punjab" under the aegis of the Punjab Library Association in Patiala recently. He said the time had come to put pressure on the government and society to put the library system on progressive lines.

Dr. Singh stressed the need of inculcating the habit of reading. School libraries should be integrated with public libraries. Readers should be actively associated with the knowledge stored in these libraries, he added.

In his keynote address, Dr N.K. Sharma, President, Haryana Library Association, said the public library system required enactment of library legislation for their legal base, including proper functioning of the constituents of the public library system.

Presiding over the function, Dr U.S. Banga, DPI(C), said the State Government was contemplating legislation of public library system and had instructed the College

Directorate to prepare a draft after studying the Haryana Public Library Act. He suggested that the State Government in collaboration with the Punjab Library Association should organise a seminar to discuss the draft of the Punjab Public Libraries Bill submitted to the government in 1982.

Medical College in Tripura

A Medical College is proposed to be set up in Tripura. To be built at an estimated cost of Rs. 12.5 crore, the foundation of the College was recently laid at Hapania near Agartala by the Chief Minister, Mr. Sudhir Ranjan Majumdar.

Being set up by the Baba Mungipa Education Trust of Haryana, the college will have a total of 100 seats, 25 of which would be kept reserved for Tripura.

Mr. Majumdar said the college would fulfil a long-cherished dream of the people of this tiny North Eastern State and hoped that the fresh graduates from the college would dedicate themselves for the benefit of the poor, specially those in Tripura.

Rajiv Gandhi Instt. of Contemporary Studies

The Rajiv Gandhi Foundation is reported to have set up the Rajiv Gandhi Institute of Contemporary Studies. It is visualised as an institute of excellence, a think-tank to engage itself in research and continuing education related to the process of modernisation and nation building.

The Institute is expected to start functioning in 1992.

News from Agricultural Universities

ISAM Meets at HAU

The Annual Conference of the Indian Society of Agricultural Marketing (ISAM) was recently organised at the Haryana Agricultural University (HAU), Hisar. Inaugurating the conference, Shri Bhajan Lal, State Chief Minister said that farming and marketing go side by side and unless and until marketing was modernised and upgraded on the basis of day to day requirements, renewed efforts would be of no use to the farming community.

"As the traders have been getting loans without selling their commodity, farmers of Haryana will also be allowed loans by the nationalised banks against their produce so that they may get remunerative prices of their produce at later stage. Haryana is the first state of the country to have introduced this type of new loan facility to the farmers of the state", Shri Bhajan Lal added.

He urged the scientists to concentrate their efforts in the research on oilseed, pulses, fruits and vegetable so that farmers could get remunerative prices and foreign currency was saved. Lauding the role of HAU in making Haryana State a surplus State on the agricultural front, Shri Bhajan Lal said that HAU was one of the best universities not only of the country but of Asia.

Shri Harpal Singh, Minister for Agriculture, who presided, said that Haryana which was a deficit State at the time of its formation had now

become a surplus State only because of the liberal policies introduced by the government, research support extended by HAU and hard labour put in by the farming community. He urged the scientists to accelerate the researches on quality seeds, quality pesticides and fertilizers.

Welcoming the participants, Dr. A.L. Chaudhry, Vice-Chancellor, HAU, said that University had attracted the attention of the international scientists by focussing its research on thrust areas. He said that to accelerate the rural development programmes in the State university had planned to introduce new courses of rural management.

To streamline the export of agricultural and horticultural products, the delegates recommended the establishment of National Agricultural Export Board on the pattern of National Dairy Development Board. Development of private trading houses having diverse export activities was also recommended as such houses could do better than any govt. organisation. In view of the recent emphasis laid on agricultural export, the participants observed that excise and other charges levied by the govt. on fresh fruit and vegetable should be re-examined and the required infrastructural facilities at the airports of the exporting countries be provided on priority basis.

According to Dr. Dool Singh, Chairman of the Organising Committee, in the second session held on Marketing of Edible oilseeds and

oils, the participants felt that all processing units should be encouraged to establish healthy rapport with the producer suppliers and all those processing units which played an active role in increasing the yield and production of farmers of their procurement areas be given incentives. In view of the emerging changes in the edible oil markets the participants recommended that the farmer's share in the value added needed to be enhanced by creating storage and warehousing facilities at village and taluka level. The markets which have already been established in the oilseeds producing areas needed to be further strengthened, it was suggested.

The participants were of the view that all marketing operations should be mechanised as mechanisation would relieve the farmers quickly and costs of procurement would be reduced. It would also save labourers from drudgery of the arduous jobs. The participants resolved to intensify the research work on export markets in their respective institutions.

More than 200 delegates from all over India attended the three-day National Conference.

We Congratulate...

Dr. P. Vittal Rai who has been appointed Vice-Chancellor of the University of Agricultural Sciences, Dharwad.

News from UGC

Research Associateship 1991

The University Grants Commission has selected a total of 228 scholars for the award of Research Associateship-1991 in science, humanities and social science subjects. These also include part-time research associateship for women (52), research associateship in Gandhian Studies (3), Nehru Studies (3) and National Integration (2). Among these awardees there are nine physically handicapped scholars.

A post-doctorate award, the Research Associateship is offered by

the UGC directly every year with a view to provide opportunity to talented research scholars who have shown extraordinary competence to take up research work independently or on project assignments in science, humanities, social science, engineering and technology. Besides associateship emoluments, the selected scholars are also offered annual contingency grants as also department assistance to the host institutions for providing infrastructural facilities to the researchers to facilitate their research studies.

News from Abroad

Educating Girls is Good Economics

A World Bank study says that educating girls is not charity. It is a good economics and if developing nations are to abolish poverty, they are to educate the girls.

"The economic and social returns on investments in education for girl are substantial and on the whole probably greater than those for boys," says the study "letting girls learn: promising approaches in primary and secondary education."

Education creates opportunities for girls to enter the labour force and be more productive when they become adults. When women have jobs, they have higher incomes, they often choose to have smaller families, and they can afford to make sure their children are well fed and have access to health care and schooling. Research has shown that educating girls can help developing countries tackle poverty, population

growth and poor health conditions.

Despite the need to educate girls, girls in many developing countries have less access to education than boys. If governments are interested in combating poverty, improving the well-being of families and slowing population growth, they need to make it easier for parents to send their daughters to school, the study says.

Stressing the importance to popularise education among girls, the study says that governments can provide special subsidies for the task. These subsidies are economically justifiable because the parents who pay for the costs often have little to gain but society benefits greatly from the presence of educated women.

Scholarships can be provided or

fees can be waived for girls. Schools can be built closer to families. Curricula can be made more practical. School hours can be changed to allow girls to do some of their household chores before going to school. Transportation can be provided to girls who live in areas where cultures do not approve of girls walking to school alone. Water supplies can be installed closer to homes so that girls spend less time fetching water and have more time available for schooling.

ROLEX Awards for Enterprise

The Montres Rolex have invited entries for the 1993 Rolex Awards for Enterprise. Proposals have been sought for projects of exceptional quality in any of the following three categories: Applied Sciences and Invention, Exploration and Discovery, The Environment.

The sixth Rolex Awards which will be presented in April 1993 to five "Laureates" whose original projects demonstrate a true spirit of enterprise, originally and the likelihood that they will be implemented or progress. Each Laureate, will receive 50,000 Swiss francs and a specially inscribed gold Rolex chronometer. Those receiving Honourable Mentions will receive a Rolex steel and gold chronometer, which will be awarded in their country of residence. The Rolex Awards have helped open doors for those for whom a spirit of enterprise is an overriding passion motivating them to action. Without this support, hundreds of innovative ideas extending across all spheres of knowledge would have remained unrealized dreams.

Among the 1990 winners were a

Hog Kong physician who is researching the Golden Age of trading along the maritime Silk Route by retracing Marco Polo's famous sea voyage; a British writer and photographer who, after caring for wildlife for more than a decade, will now establish the first European Wildlife Teaching Hospital; an Indonesian veterinarian who is currently building Indonesia's first Environmental Education Centre which is intended to change ecological attitudes in the country; an American scientist who is using a laser to restore the colours of the terra-cotta Mt. Liwarriors in China; and a Swiss ornithologist whose environmental education programme in Brazil aims to rebuild the rain forests there.

The 1993 Selection Committee, chaired by Mr. Heiniger and consisting of world-renowned figures from ten countries, will include: Mr. Charles F. Brush (United States), Mr. Nils Dahlbeck (Sweden), Mr. Joel de Rosnay (France), Dr. Santiago Dexeus (Spain), Sir Edmund Hillary (New Zealand), Professor Heisuke Hironaka (Japan), Mr. Brian Redhead (United Kingdom), Mrs. Ruth Seering (Germany), Mr. Ragnar Thorseth (Norway) and Professor Umberto Veronesi (Italy).

Apart from the 25 Laureates who have, to date, received The Rolex Awards for Enterprise, and dozens of Honourable Mentions, the work of hundreds of other entrants has been brought to public attention and implemented through the publicity their projects received from a series of books entitled *Spirit of Enterprise*, and a brochure describing a selection of the most interesting projects, that have been published by Rolex following each Awards ceremony. For more than 15 years, The Rolex Awards for Enterprise have stood out among all the ongoing scientific, literary and

other prizes as recognizing individuals who display commitment, enthusiasm, ingenuity and a sense of adventure. Initiated in 1976 to celebrate the 50th anniversary of the Rolex Oyster and conferred every three years since 1976, the Awards pay tribute to the spirit of enterprise which has been the company's hallmark since its inception. They have become a tradition, representing Rolex's continuing search for achievement and perfection.

Prospective applicants should write for an application form to: The Secretariat, The Rolex Awards for Enterprise, P.O. Box 178, CH-1211 Geneva 26, Switzerland.

Prof. John is no more

Prof. V.V. John, an eminent educationist and the former Vice-Chancellor of the Jodhpur University, died on 24 November, 1991 after a prolonged illness at Jodhpur.

Born in 1910 in Kerala, Prof John did his B.A. (Hons) from the Madras University and his M.A. from the University of Oxford.

Before becoming the Vice-Chancellor of the Jodhpur University (1969-72), he worked as the Director of the College Education in Rajasthan. He also worked as Adviser to the Delhi University in 1972-73.

Till 1976, he was involved in educational research as fellow of the Indian Institute of Advanced Study, Shimla. In 1977, he was made a member of the Minorities Commission. He was the founder member of the Karoria Girls College in Jaipur.

Prof John, a brilliant speaker, had contributed many educational features in the leading national dailies.

A Tranquillizer and a Spur

G. B. K. Hooja*

Sultan Chand. The Gita : The Gospel of Harmony in Life. New Delhi, Sultan Chand & Sons. Pp. 163, Price Rs.20/-

Time : Around 3,000 B.C.

Scene

The battlefield of Kurukshetra – 70 miles North of Delhi, Capital of India. Opposing armies of the Kauravas (descendants of Kuru) and their cousins Pandavas (sons of Pandu) stand arrayed awaiting the word of command. Grandfather Bhishma, the terrible, is the Commander-in-chief of the Kaurava army assembled to fight on behalf of Prince Duryodhana, son of King Dhritarashtra, who succeeded to the throne on the demise of his brother, King Pandu, the father of Prince Yudhisthir who is the other contestant for the throne of Hastinapur. The Pandava army is led by his younger brother, the renowned archer, Prince Arjuna. The charioteer of Prince Arjuna's chariot is no other than Lord Krishna, an *avatara* (reincarnation) of Lord Vishnu, the Protector, one of the Divine Trinity.

Prince Arjuna asks Krishna to move his chariot forward so that he may view the opponents who support the "evil-minded" Duryodhana. As Krishna stations the chariot of Arjuna in the midst of the two contending armies and Arjuna spots his grand-uncles, teachers, cousins, their sons and grandsons, friends

and relatives, amongst the army assembled to fight him, he loses his nerve. He says, in so many words, to Krishna that he saw no good in the impending conflict and would rather not fight his kith and kin. He enumerated the evil consequences which follow a civil war and throwing down his bow and arrows, sat down, sunk in a fit of depression. "To do or not to do", was the question.

At this juncture, Krishna is said to have entered upon a lengthy discourse in an attempt to convince Arjuna that it was his duty to fight and that he should not allow himself to be assailed by doubts. This discourse is contained in 700 odd stanzas, divided into 18 chapters, and goes by the name the *Bhagwad-Gita*, the Divine Song. It forms part of the great Sanskrit epic of *Mahabharata*, composed by the sage Veda Vyasa, who was an elder statesman of India at that time and is credited with having systematized the Vedas, in the present format. The *Mahabharata* or the story of Greater India originally consisted of 24,000 verses, but in course of time, it came to be extended to 100,000 verses.

Logicians have questioned the fact of the *Gita* having been delivered at the battle field of Kurukshetra, as commonly believed, considering that the battle field was surcharged by the eagerness of the warriors to go into action and was resonant with the blowing of conches, neighing of horses and

rattling of sabres. Here is a document brimful of abstruse logic, profound philosophy, which has attracted the minds and pens of hundreds of scholars in the past 50 centuries and yet remains a rich theme for interpretation and re-interpretation. How could it possibly have been grasped and internalized by a bewildered warrior prince who stood demoralized by confusion, within the span of a few hours, during which it is claimed to have been delivered? Did the armies stand still all the while to oblige Lord Krishna to deliver his lengthy sermon so that Arjuna may abandon his doubts and grief and stand up to take arms against his foes?

Mahatma Gandhi (1869-1948) considered the *Gita* to be an allegory, in which the battle field is the human persona and Arjuna stands for man's higher impulses struggling against evil. The Mahatma was a pacifist, a devotee of Truth and Non-violence. He rejected the view that the *Gita* was delivered by way of Divine spur to the faltering prince, on the battle field of Kurukshetra, urging him to stand up and assume command of the Pandava forces and engage in battle against his relatives turned foes.

In his commentary on the *Gita*, which he called the *Anaasakti Yoga*, (union through detachment) he laid emphasis on the growth of the soul through constant practice of the 5 *yamas* (controls) namely, Truth, Non-violence, Celibacy, Non-possession and Non-theft. During the course of his long life, he earnestly endeavoured to practice them and to acquire the status of a *Karma Yogi*, who was jealous of none, was a fount of mercy, was without egotism, was selfless, who treated alike cold and heat, happiness and misery, who was ever forgiving, who was always

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contented, whose resolutions were firm, who dedicated his mind and soul to God, who caused no dread, who was not afraid of others, who was free from exultation, sorrow and fear, who was pure, who was immersed in action and yet remained unaffected by it, who renounced all fruit, good or bad, who treated friend and foe alike, who was untouched by respect or disrespect, who was not puffed up by praise, who did not go under when people spoke ill of him, who loved silence and solitude, who had a disciplined reason.

Thus according to Gandhi, the central message of the *Gita*, is action informed by non-attachment or desirelessness.

It is a universal message of the old and the young, for the rich and the poor, for the merchants and the plough-men, for the rulers and the ruled. "For the protection of the good and the destruction of the evil, I arise from generation to generation", says the Lord. If we meditate deeply on this promise, we may realize that this Divine fire is treasured

within us. Didn't Christ also say, "The Kingdom of Heaven is within you. Seek and ye shall find?"

Gita seeks to teach the technique for the development of the super-ego and the merger of the ego in it. It makes a plea for balance and moderation and abjures extremism in any form. It calls for the discharge of your sacred duty and having done your duty, it asks you to shun the reward. "Do your best and leave the rest." Is this not the prescription for avoiding stress, high blood pressure and peptic ulcers? Thus the *Gita* operates as a tranquillizer as well as spur. To quote Gandhi, "He who is ever-brooding over result, often loses nerve in the performance of duty". As Aldous Huxley notes, the *Gita* is a compendium of the Vedic doctrine. It is poetical as well as methodical. It is a timeless gospel, which seeks to lay down the drill for the identification of self (ego) with Divine (super-ego). Of course, parrot-like learning by rote and repeating the sacred stanzas without understanding the text and its meanings shall lead nowhere. Hence the necessity of translating it into the language of the practitioner and

hence also the importance of placing it into the hands of the young-ones, for them to ponder over and to try to translate into day-to-day action the steps prescribed therein for better living and healthier social interaction.

It is with this end in view that M/s Sultan Chand and Sons have brought out this translation of the *Gita* in English. The English rendering was done by Shri Sultan Chand (1896-1975), founder of the firm. Shri Sultan Chand was a devoted student of the *Gita* and considered it to be the gospel of life as a whole, of harmony in all areas of human endeavour through the attainment of *Sam- Siddhi* (*Gita* III 27). Imbued with the spirit of the *Gita*, he took to the publication and distribution of value laden educational literature at reasonable prices for the guidance of the Indian youth. He was a *karma yogi* who brought to his work the *Gita* attitude of dedication and responsibility. Through this publication, the successors of this noble soul seek to carry forward his tradition of conveying ennobling truths in simple form to the seekers of the path across the English-speaking world.

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Pay: In the scale of Rs.2000-60-2300-EB-75-3200 plus allowances as admissible to Central Government employees stationed in Bombay. A higher basic may be given to deserving candidates.

The appointments are for a time bound project and the candidates are expected to work mainly for the successful completion of the project.

Candidates desirous of applying may send in their applications on plain paper giving details of advertisement number, post applied for, title of the project, name, mailing address, date of birth, academic qualifications and experience with copies of certificates addressed to the Registrar, Indian Institute of Technology, Powai, Bombay-400 076 within 12 days from the date of advertisement. Candidates called for interview will be required to attend at their own expenses.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Advertisement No.F-67/91-92

Project Title: The Integration of SC/ST Students in the Indian Institutes of Technology.

Wanted one Senior Research Fellow on monthly fellowship of Rs.2400/- per month. The post is for one year initially but could be extended. Candidates should have M.A. (55%) in Psychology/Sociology with knowledge of data processing. Those with three years' research experience/Ph.D. will be given preference. The project is time bound and candidate will be expected to work for its successful completion.

Interested persons may apply on plain paper giving all relevant details, testimonials within 15 days to the Registrar, Indian Institute of Technology, Bombay - 400 076 quoting "IRCC Project".

REGISTRAR

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in the bibliography. Such universities as are not sending us regular information in respect of doctoral theses accepted and research scholars enrolled are welcome to make use of these columns.

The library also receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly the column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

HUMANITIES

Philosophy

1. Baruah, Archana. *The religious form of life in Assam with special reference to the Vaishnavism of Shankaradeva*. NEHU. Dr (Mrs) S Miri, Department of Philosophy, North-Eastern Hill University, Shillong.

2. Bhat, Vishnu A. *The structural aspect of Pratibha in Sanskrit drama*. Madras.

3. Narayanan, K N. *The philosophy of Sivavakkiar*. Madras.

4. Natarajan, K. *An interpretation of the Jivanmukthiviveka of vidyaranya*. Madras.

5. Shrivastava, Tripurari Babu. *Acharya Shankar krit upanishad bhashyon ka sameekshatmak adhyayan*. HS Gour. Dr B N Sharma, Department of Philosophy, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

6. Sulekha, A K. *Nature and destiny of man in the philosophy of Sri Aurobindo*. Kerala. Dr K Saratchandran, Prof and Head, Department of Philosophy, University of Kerala, Kariavattom.

Fine Arts

Music

1. Poduval, Lakshmi. *A study of music and philosophy in*

Muthuswamy Dikshitar's kritis. Madurai.

2. Saraswathi, K. *Thirugnana Sambandarin Devara isai*. Madras.

3. Tilak, Vijaya. *Marathi natya sangit: Ek swatantra avishkar*. SNDT. Dr Prabha Atre, Prof and Head, Department of Music, Shrimati Nathibai Damodar Thackersey Women's University, Bombay.

Language & Literature

English

1. Arunadevi, P. *A constructive analysis of tense systems in English and Tamil*. Madras.

2. Balachandran, R. *The symbolist and imagist movement in English literature and Tamil modern poetry: A comparative study*. Bharathidasan. Dr K Chellappan, Prof and Head, Department of English, Bharathidasan University, Tiruchirapalli.

3. Gopalasamy, M S. *The political speeches and writings of Edmund Burke and C N Annadurai: A comparative study*. Madras.

4. Gowri, G. *Novels of Kamala Markandaya: A study*. Venkateswara. Prof G Nageswara Rao, Department of English, Sri Venkateswara University College, Tirupati.

5. Malathi, V. *Existentialistic philosophy in modern fiction: A*

study. Madras.

6. Prabhu, K M. Use of the radio in developing communication skills in English. Madras.

7. Raghuvashi, Rashmi. The dramatic art of Arthur Miller. Devi Ahilya. Dr R N Sharma, Prof (Retd), Govt New Girls' Postgraduate College, Indore.

8. Rupinder Kaur. Faith and doubt in the poetry of Robert Browning. Punjabi. Dr Gurdit Singh, Prof, Department of English, Punjabi University, Patiala.

9. Satpathy, Samanya. Poet as editor: T S Eliot's editorship of the criterion, 1922-1939. NEHU. Dr E N Lall, Department of English, North-Eastern Hill University, Shillong.

10. Singh, Abha. The contours of contemporary American drama with special reference to Tennessee Williams, Arthur Miller, Edward Albee. Magadh.

11. Syed Mukaram. The symphony of life: A study of Professor Rama Sharma's plays and novels. Venkateswara. Prof G Nageswara Rao, Department of English, Sri Venkateswara University College, Tirupati.

12. Zachariah, Arun. The concept of travel in the works of Mark Twain. Sukhadia. Dr Saran Bihari Mathur, Assoc Prof (Retd), Department of English, Mohanlal Sukhadia University, Udaipur.

Sanskrit

1. Sirisha, K. The Prameyamala of Sri Vatsya Varadacarya: A study. Madras.

Punjabi

1. Charanjeev Kaur. Punjabi Istri navalkaran de navalan vich nari chetana. Punjabi. Dr Balwinder Kaur Brar, Reader, Department of Punjabi, Punjabi University, Patiala.

2. Maninder Pal Singh. Puratan Janma Sakhi: Chinn vaigyanik adhyayan. Punjabi. Dr Gurdev Singh, Prof, Department of Punjabi, Punjabi University, Patiala.

Hindi

1. Agarwal, Radha. Kamayani tatha Urvashi mein samya vaishmya. Devi Ahilya. Dr Badri Prasad Virmal, Department of Hindi, Govt Girls' Post Graduate College, Indore.

2. Dharmik, Shreepati Chintanan. Kabir sahitya mein sudharwadi samajik, dharmik aur naitik chetana tattvon ka anusheelan. Nagpur. Dr Prabhatkumar Dube, Mahatma Jyotiba Fule College, Ballarpur.

3. Gurmit Singh. Adhunik pramukh Hindi kavayon ke kavya mein Bhartiya sanskriti ke vividh ayam: Kewal Jaishankar Prasad, Suryakant Tripathi Nirala aur Ramdhari Singh Dinkar ka kavya. Punjabi. Dr Krishan Bhavuk, Reader, Department of Hindi, Punjabi University, Patiala.

4. Mohammad Ashiq Ali. Nirala ke katha sahitya mein svachchandanavadi tattva. AMU. Dr B S Sharma, Reader, Department of Hindi, Aligarh Muslim University, Aligarh.

5. Prasanna, Durga Lakshmi. Hindi aur Telugu upanyason mein astitvavad. Osmania.

6. Sarada, Kauta. Bharatendu kaleen natakkar aur Purushottama kavi. Osmania.

7. Sorathia, Aruna. Swatantrayottar Hindi kahani mein pratibimbit parivarik jeevan. SNTD. Shri J G Trivedi.

8. Thakkar, H T. Upendranath Ashk ke upanyas sahitya mein nirupit vyakti aur samaj. Saurashtra. Dr N B Pandya.

9. Upadhyaya, Rajendra Nath. Riti swachchand kavya dhara aur Bodha ka kavya: Ek tulnatmak adhyayan. Patel. Dr R H Patel, Reader, Department of Hindi, Sardar Patel University, Vallabh Vidyanagar.

10. Varun, Yogendra Kumar. Mahakavi Sri Ramnigbal Singh "Rakesh" ke kavya sadhana. Osmania.

Marathi

1. Deo, Subhaga. A literary and social work of magazine 'Stree', 1930-1960. SNTD. Dr Lalita Kumbhojkar.

Arabic

1. Jasaratunisa Begum. A critical study and edition of Salwatul gareeb wa uswatul areeb. Osmania.

2. Md Kased Ali. Maulana Muhammed Akran Khan, 1868-1968: His life and works. Calcutta.

Tamil

1. Gnanammal, R Suganthi. Neelagiri Mavatta sorkalaivo, Pazhangudigal. Madras.

2. Jayam, A. Arulmigu Parthaswathi swami kott pazhalmayum perumaiyom. Madras.

3. Kandasamy, K. Pandalthamizh Mahabarathamum unarthum por marabugal. Madras.

4. Kanthasamy, A. Panditha Mu Nallasamy nadavum avavathu noolgalum. Madurai.

5. Manimaran, P. Bharathidasan: Perunchithirana oru anivu. Bharathidasan. Dr K P Ganesan, Senior Lecturer, Periyar E V R College, Trichi.

6. Marimuthu, T. Bharathidasan padaippugalil Morumalarchi chindanaigal. Madras.

7. Nalanaili, A. Appar Devarathill vazhviyalum iralyiyalum. Bharathidasan. Dr V T Manickam, Prof and Head, Department of Tamil, Pachaiyappa's College, Madras.

8. Pakkiavathy, S. Kappiyangalil mayil. Madras.

9. Rajamanickam, J P. Arunodayam: Chirithuva thingal idazh oru paarvai, 1978-88. Bharathidasan. Dr A Gopinath, Post Graduate and Research Department of Tamil, Bishop Heber College, Trichi.

10. Susila, P T. Thamizh naalgalil manidha uravugal. Madras.

Telugu

1. Babu, Hemachandra. Kolakaluri enoch natakalu: Pariseelana. Venkateswara. Dr K Anandan, Lecturer, Department of Telugu, Sri Venkateswara University College, Tirupati.

2. Lalithavani, P. Bhimasena's characterization in the Andhra Mahabharata. Venkateswara. Prof G Nagaiah, Department of Telugu, Sri Venkateswara University College, Tirupati.

3. Manjulata, A. Life and works of Kaviraju Tripuraneni Ramaswamy. Osmania.

4. Moulana, P. Romantic outlook in Telugu cine songs. Venkateswara. Dr S G D Chandrasekhar, Department of Telugu, Sri Venkateswara University College, Tirupati.

5. Rama Krishna Reddy, Padala. Folk arts, plays and pastimes of the Godavari Region. Andhra.

6. Ramaiah, T Kusala. A critique on Tummala Sitarama Murthy's works. Madras.

7. Sivashankar Rao, V. Nagabharava katha kavyalu. Telugu.

History

1. Kasthuri, Prema. Society and social change as gleaned from nineteenth and twentieth century Tamil literature. Madras.

2. Kochar, Ram Sarup. Indian National Congress and socialism, 1947-77. HP.

3. Saila Bala, G S. External relations of Vijaynagara Kingdom, 1500-1630 A D. Osmania.

4. Yadav, Badri Prasad. Mahakavya kaleen Bharat mein Istriyon ke dasha. HS Gour. Dr V D Jha, Department of Ancient Indian History, Culture and Archaeology, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

माखनलाल चतुर्वेदी राष्ट्रीय पत्रकारिता विश्वविद्यालय संस्थान

विश्वविद्यालय संस्थान हिन्दी में पत्रकारिता और जनसंचार के शिक्षण, प्रशिक्षण, शोध और प्रकाशन के राष्ट्रीय केन्द्र के रूप में विकसित किया जा रहा है। इस स्वायत्तशासी विश्वविद्यालय की स्थापना मध्यप्रदेश शासन के एक अधिनियम द्वारा की गयी है।

(1) रीडर सन्दर्भ एवं पुस्तक विज्ञान—एक पद

अर्हता— (1) पुस्तकालय विज्ञान में स्नातकोत्तर उपाधि कम से कम द्वितीय श्रेणी में, (2) किसी प्रमुख पुस्तकालय/सन्दर्भ केन्द्र/बड़े समाचार पत्र सन्दर्भ कक्ष के वरिष्ठ पद पर कम से कम सात वर्ष का अनुभव, (3) समसामयिक घटनाओं की अच्छी जानकारी, (4) हिन्दी और अंग्रेजी का अच्छा ज्ञान।

वांछनीय— अध्ययन और अध्यापन में रुचि

आयु— अधिकतम 45 वर्ष

वेतनमान— 3700 से 5700 रुपये तक

(2) उप पंजीयक—एक पद

अर्हता— (1) स्नातकोत्तर उपाधि कम से कम द्वितीय श्रेणी में, (2) शासकीय/अर्धशासकीय या प्रतिष्ठित व्यवसायिक अथवा शिक्षण संस्थान में अधिकारी/प्रबंधक के पद पर कम से कम 3 वर्ष का अनुभव, (3) किसी प्रतिष्ठित संगठन में प्रकाशन अथवा किसी शिक्षण संस्था में परीक्षा कार्य का लगभग 3 वर्ष का अनुभव।

आयु— अधिकतम 40 वर्ष

वेतनमान— 3000 से 4500 रुपये तक

(3) पत्रकारिता संकाय

1. व्याख्याता—एक पद

अर्हता— (1) द्वितीय श्रेणी में स्नातकोत्तर उपाधि, (2) किसी मान्यता प्राप्त विश्वविद्यालय से पत्रकारिता/जनसंचार में स्नातक/स्नातकोत्तर उपाधि, (3) किसी मान्यता प्राप्त विश्वविद्यालय/संस्थान में पत्रकारिता विभाग में व्याख्याता के पद पर कम से कम एक वर्ष का अनुभव अथवा किसी शीर्ष समाचार पत्र में सहायक सम्पादक के समकक्ष अथवा उच्च पद पर कम से कम पांच वर्ष का अनुभव।

आयु— अधिकतम 35 वर्ष

वेतनमान— 2200 से 4000 रुपये तक

(4) जनसम्पर्क संकाय

1. व्याख्याता—एक पद

अर्हता— (1) स्नातकोत्तर उपाधि कम से कम द्वितीय श्रेणी में, (2) किसी मान्यता प्राप्त विश्वविद्यालय से जनसंचार में उपाधि कम से कम द्वितीय श्रेणी में, (3) किसी विश्वविद्यालय अथवा प्रतिष्ठित संस्थान में जनसंचार के व्याख्याता के पद पर कम से कम एक वर्ष का अनुभव, (4) किसी शासकीय/अर्धशासकीय अथवा प्रतिष्ठित निजी संस्थान में जनसम्पर्क/प्रकाशन का 3 वर्ष का अनुभव।

अधिकतम आयु— 35 वर्ष

वेतनमान— 2200 से 4000 रुपये तक

1. पंजीयत डाक से आवेदन दिनांक 24 दिसम्बर 1991 तक कार्यपालन निदेशक, माखनलाल चतुर्वेदी राष्ट्रीय पत्रकारिता विश्वविद्यालय, पो.बा. नं. आर.एस.एन./60, भोपाल-462016 को प्राप्त हो जाये।

2. आवेदन में अपनी योग्यता, आयु और अनुभव संबंधी समस्त जानकारी संबंधित प्रमाण-पत्रों की फोटो प्रतियों के साथ संलग्न होना चाहिये।

3. आवेदन पत्र के साथ 50 रुपये का बैंक ड्राफ्ट जो कि माखनलाल चतुर्वेदी राष्ट्रीय पत्रकारिता विश्वविद्यालय, भोपाल में देय होना चाहिये, संलग्न होना अनिवार्य है।

4. 24.12.1991 के बाद प्राप्त आवेदन और अपूर्ण आवेदन पत्रों पर विचार नहीं किया जायेगा।

5. सरकारी सेवा के उम्मीदवारों को चयन होने की दशा में अपने-अपने पद से त्यागपत्र देना होगा।

6. गृह भाड़ा भत्ता और मध्यप्रदेश सरकार द्वारा स्वीकृत दर से महंगाई भत्ते की पात्रता होगी।

7. चयन की प्रक्रिया के संबंध में विश्वविद्यालय का निर्णय अंतिम होगा।

कार्यपालन निदेशक

अतुल पन्लिसिटी

VISVA-BHARATI

Admission Notice for Academic Session 1991-92 for Sangit-Bhavana

With reference to our advertisement in the newspaper dated 26.5.91 for admission to Diploma in Music and Dance/B. Mus. courses for the session 1991-92, in which minimum 45% marks in S.F./H.S. Examinations were the criteria circulated in the handout issued by the Sangit-Bhavana has been waived for this session. The revised criterion of admission to Diploma/B.Mus. courses in Music and Dance will be pass in S.F./H.S. respectively. Applications should reach the Adhyaksha, Sangit- Bhavana, Visva-Bharati, Santiniketan within 15 days from the publication of this advertisement. Other rules and directions as advertised earlier remain unchanged. Those who have already applied need not apply again. The final selection will be made on the basis of the aptitude test.

REGISTRAR
VISVA-BHARATI

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI (RAJASTHAN) 333 031

Faculty Recruitment Advertisement No. FR/2/91

Applications are invited for faculty positions at various levels in Chemical, Civil, Electrical & Electronics, Microelectronics and Mechanical Engineering; Computer Science, Instrumentation, Pharmacy, Management; Biosciences, Chemistry, Economics, Mathematics, Physics, Science & Technology Development, Museum Studies, Engineering Technology, Information Systems; English, and Humanities. Positions (full-time/part-time) are also available for the Institute's off-campus operations in Bombay, Calcutta, Delhi, Hyderabad, Madras etc. Candidates should normally possess a Ph.D. degree. In case of professional disciplines Master's or Bachelor's degree holders will also be considered.

Young persons who have done outstanding work and who are capable of giving leadership in modern areas in Chemical, Electrical & Electronics and Mechanical Engineering; Computer Science, Management, and Pharmacy may be considered for professorship/assistant professorship irrespective of their age. Persons appointed in Mechanical Engineering may also be considered for the post of Chief, Workshop Unit.

A free booklet "Introducing BITS to Prospective Faculty" giving details can be obtained by sending a pre-stamped (Rs.6.00) and self-addressed envelope (30x25cm) marked FR/2/91.

There is no last date for receipt of applications. This advertisement will be valid till June 1993. Applications received will be reviewed periodically and offers made accordingly. First review of applications will be by June 30, 1992.

PILANI
November, 1991

REGISTRAR

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NATIONAL INSTITUTE OF RURAL DEVELOPMENT

(An Organisation of Ministry of Rural Development, Govt. of India)

Rajendranagar, Hyderabad-500 030

The National Institute of Rural Development, a premier national level training and research organisation, located at Rajendranagar on the outskirts of Hyderabad has reoriented its action plan for the Eighth Five Year Plan. The action plan envisages the Institute taking up a large number of research projects on issues of immediate relevance to programme design, policy formulation and evaluation of rural development programmes. The thrust areas would be :

- i) Empowerment studies relating to landless poor and women;
- ii) Employment generation and productivity increase; and
- iii) Institutional infrastructure with special reference to Panchayati Raj, Co-operatives and voluntary organisations.

The Institute intends to draw up a panel of young scholars for engagement as Project Research Associates to assist in the conduct of research in various time bound projects in NIRD.

The educational qualifications/experience expected are :

Essential

Master's degree with atleast high second class in Agricultural Extn./Economics/Rural Management or any other social sciences with Ph.D. Those who have completed their Ph.D. work and submitted the thesis for evaluation can also apply. Candidates who have already worked on rural development issues and have deep interest in research of an inter-disciplinary nature on any issues related to rural development will also be considered.

Desirable

- i) Working knowledge of Computer applications.
- ii) Experience of conducting field studies and ability to report research findings.

Terms

The job will last for six months extendable by another six months at a time purely as per the requirement of individual projects. A consolidated salary within a range of Rs.2500/- to Rs. 4000/- per month commensurate with individual qualifications/experience will be paid. No other allowances are admissible. Suitable travelling allowance will be paid whenever they are sent to outstations on field work.

Reservation rosters as applicable to SC/ST candidates will be followed at the time of appointment to Projects.

Prescribed application forms can be obtained by sending IPO for Rs.10/- (Rupees Ten only) in case of other candidates, and Rs. 1.50 for Scheduled Caste/Scheduled Tribe categories (in favour of Registrar). Applications with full details of Bio-data supported by copies of relevant certificates may be sent to the Registrar, National Institute of Rural Development, Hyderabad on or before 23.12.1991.

REGISTRAR
NIRD

University News

ISSN-0566-2257

C. P. T. D. I., MYSORE

MONDAY, DECEMBER 16, 1991

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West Zone Inter-University Youth Festival

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SURVEY ON THE TEACHING OF

FRENCH IN INDIA

A survey is being conducted by the French Government so as to enable it to get a more comprehensive view of the numerous institutions and persons involved in the teaching of French in India and thence compile a directory with the information collected.

To this end, the French Embassy would like to reach out to as many people / institutions as possible, and the kind collaboration of individuals / establishments having any information on this matter/suggestions is solicited. A questionnaire for this purpose is given hereunder and readers with any details on the subject are requested to fill it in and send it to :

C.E.D.U.S.T.

(French Centre for University, Scientific & Technical Documentation)

French Embassy - Office of the Counsellor for Cultural, Scientific & Technical Cooperation
2, Aurangzeb Road - New Delhi - 110 011

Tel. : 301 46 82 / Fax : 301 64 41

Telex: 31-62262 SCSC IN / 31-66693 CEDU IN.



QUESTIONNAIRE

Survey of teaching of French in India at all levels (Universities / Colleges / Specialised Institutions / In-house training in Companies / Schools / etc.), being conducted by the Centre for University, Scientific & Technical Documentation (CEDUST) of the French Embassy - 2, Aurangzeb Road - New Delhi - 110 011.

I - Name & address of Institution :

II - Is French offered in your Institution ? (*)

YES

☐

NO

☐

III - Do you know of other Institutions which offer French as a subject ? (*)

YES

☐

NO

☐

- If yes, kindly indicate the names & addresses (*) :

(Please attach an extra sheet if the place provided is not sufficient)

.....
.....
.....
.....
.....

IV - Do you know of Persons teaching French in any Institution other than yours ? (*)

YES

☐

NO

☐

- If yes, kindly indicate their names and if possible, their addresses :

(Please attach an extra sheet if the place provided is not sufficient)

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UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

Improving Teaching in Higher Education

1 JAN 1992
C. P. T. R. I. MYSORE
A. L. Deshpande*

Although the recent University Grants Commission publication entitled 'Role and Responsibility of Teachers' states rather rhetorically that 'the destiny of the country is being made in the classrooms and the teacher has an important and vital role to play in the total programme of national development and social change' and that 'the first and foremost responsibility of the teacher is to his students', it is unfortunate that not much effort is being made to investigate the causes of poor teaching in our colleges and universities. In fact what we need is a realistic appraisal of the causes of bad teaching and a practical programme that will help remove the impediments in the way of good teaching.

First of all we must realise that good teaching can take place only under certain contexts. The most important factor in this process is the student. The student must possess the necessary aptitude and motivation to benefit from good teaching. Therefore it is imperative that some sort of aptitude criteria are applied at the time of admission of students to institutions of higher education. The second important factor which militates against good teaching is the absence of a large number of students from classes. It is found that the regulations regarding attendance are not strictly adhered to by a large number of colleges. The authorities should introduce stricter measures in this regard if they have the welfare of the nation at their heart. Thirdly, we must realise that the system of ATKT recently introduced by many universities is playing havoc with the motivation of students. It has certainly weakened their motivation.

The removal of these constraints on effective teaching will go a long way in improving the teaching of a large number of teachers. However this by itself is not sufficient. What we need are positive steps which will ensure that good teaching is adequately rewarded and at the same time poor teaching is penalised. The rewards may be in the form of honour and prestige or they may even assume monetary form.

At present, a good teacher is neither given a salary increase nor wins the admiration of his peers. On the contrary it proves a positive handicap because a good teacher finds himself isolated and lonely in the company of mediocre teachers. Consequently college teachers become good teachers only if it comes naturally and easily. They do not want to exert themselves on this count because bad teaching does not incur any penalty.

It is true that college teachers are sometimes rewarded by the State Governments but such rewards do not always win the admiration of their peers. Therefore what we need is a body of teachers which will care exclusively for the pursuit of excellence in teaching. So high should be the prestige of this body that its fellowship should be hard of attainment and the conferment of its fellowship should automatically raise the esteem of the teacher in the eyes of his colleagues.

Reputed and experienced teachers will be at the helm of affairs in such an association. They will guide such an association in the development of suitable norms for good teaching and offer professional advice and training to intending teachers and inservice training and refresher training to those who are already in the profession. They will also provide the much needed know-how on the various teaching strategies that work with various types of students.

(Contd. on page 24)

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Trends in American Higher Education

Philip G. Altbach*

American higher education is at a crossroads. The United States still has the best university system in the world—educating the largest number of students and producing the most research. However, American higher education is in danger of sliding into decline. As the Carnegie Foundation's Earnest Boyer has said, "America may be ending its romance with higher education." In the period since World War Two, American higher education achieved its preeminence. A powerful combination of government support (at both the state and federal levels), student demand, and public approval contributed to this period of sustained growth. Now, fiscal constraints, a taxpayers' revolt and demographic declines are contributing to the weakening of American higher education. Just as America has no 'industrial policy' and has lost its competitive edge, it has no 'higher education policy' and is now permitting one of its most important profitable resources slide.

Higher education is one area where the United States remains an international leader. American scientists continue to win many Nobel prizes and American basic research is still at the cutting edge. Further, while America's foreign trade deficit is burgeoning and the nation has lost its lead in electronics, automobiles and a host of other areas, it remains a powerful force in higher education. With more than 13 million students enrolled in postsecondary institutions, the United States has by far the largest academic system in the world. 640,000 students from other countries study in the United States—more than 20,000 students from Japan are enrolled in American colleges and universities. The U.S. is by far the most popular destination for foreign students and scholars. American scientific journals dominate almost every field.

American higher education is by no means in danger of imminent collapse. Indeed, it is likely to remain the single largest and most productive academic system in the world for a significant period of time. The problem is that there are powerful, although still reversible, trends pointing towards decline. Further, neither

science nor academe stand still. International currents will play a key role. At the present time, the growth and increasing sophistication of the university systems in the Pacific Rim are beginning to challenge American hegemony. Japan is already a world scientific power of increasing prestige and influence although undergraduate education remains a problem area. Universities in the newly industrializing countries of Korea and Taiwan are developing rapidly, assisted by growing governmental support and interest. It is often forgotten that the plans for European integration spearheaded by the European Community include not only trade and industry but also higher education and research. In 1992, Europe will be a large academic 'common market', greatly increasing academic cooperation. It is likely that this trend will give a significant stimulus to European higher education. Africa, on the other hand, has seen its universities virtually destroyed as a result of the continent's economic collapse and aided by political instability. In short, universities are very much part of an international knowledge system which is rapidly changing. The United States has a significant influence on this system, yet is at the same time shaped by it.

There are a number of key trends in American higher education that will influence the future. They will have a profound impact on the direction of American universities in the coming several decades.

The United States, along with other industrialized countries, is experiencing profound demographic changes. Birth rates are down and that means that the number of people in the 'traditional' college attending age group has declined and will continue to decrease. Predictions of dramatic enrollment declines made in the 1970s proved to be wrong for two reasons—increases in 'non-traditional' students who were older and who often attended part-time and increases in the participation rates of previously underrepresented people, mainly African-Americans and Hispanics. Now, however, there are number of factors which may contribute to actual declines. Increased tuition costs and diminished financial assistance due to budget cuts and government policy, are already creating problems of access for racial and ethnic minorities. An increasing proportion of American undergraduate students—around half—work part-time while attending college and this has increased the average time for the completion of the

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bachelor's degree. If current restrictive fiscal policies continue, access will be decreased and it is likely that enrollments will decline in the coming decade. In the United States, student numbers are determined only in part by demographic realities—social, fiscal and academic policies also have played a key role. Current statistics show that participation rates of the traditional 18 to 21 year old age group have remained steady at around 50% for several years and overall student enrollment rates have also been flat at around 13 million.

The student population is changing, reflecting the American population. It is more heterogeneous and diverse, causing problems for the universities. The traditional American university student was white, middle class, in the 18 to 21 age range and predominantly male. This configuration is rapidly changing. The first change was the increased numbers of women in the student population—women are now represented in higher education at about their number in the population at large—although women are dramatically underrepresented in the sciences and in engineering. While racial minorities remain underrepresented among students, their numbers have grown in recent years. In some states, change has been dramatic. In California, for example, Asian-Americans have greatly increased in numbers—and now are the largest single racial group at such prestigious universities as the University of California at Berkeley and at UCLA. Hispanics have increased their numbers in the universities as well, although generally at the lower prestige institutions. The picture is mixed nationally and there are significant differences by institutions and field of study, but overall, the American student population is becoming more diverse in terms of race, gender and ethnicity, creating challenges for the curriculum and for intergroup relations on campus.

One of the most significant debates in American higher education in recent years has concerned the nature of the undergraduate curriculum. This debate is important not only for what it tells us about what is learned in colleges but for its broader meaning. In the 1960s, many colleges dropped compulsory course requirements and permitted students a wide latitude of choices, virtually abandoning the traditional core general education curriculum. In the 1970s, many students were choosing vocationally-oriented courses. Recently, the faculty in many universities chose to reestablish a core curriculum to ensure that students were exposed to a range of intellectually stimulating courses. While the 'reformed' curriculum resembles its predecessors from the 1950s, there are some significant differences. There is a more international perspective

and, in response to recent diversification in the student population and to racial and ethnic tensions on campus, more attention to the role of minorities in American society and culture. The undergraduate curriculum has become hotly contested and controversial—in general, however, traditional ideas about the curriculum are being modified to include a wider range of perspectives and orientations.

At the same time that more attention has focused on the curriculum, there has also been increased stress on the quality of teaching at the undergraduate level and some pressure to increase professorial teaching loads. The Carnegie Foundation's influential report, *Scholarship Reconsidered*, argues that teaching should play a more central role in the reward structures of American universities and that the balance has shifted too much toward research. The outcome of this debate is not yet clear, although it is likely that teaching will be more emphasized but that a major change in the orientation of academe will not take place.

The academic profession is changing and it is subject at present to considerable strain. The most important fact is demographic. Many faculty members were hired during the great period of expansion in the 1960s and will be retiring in the coming decade. Indeed, it is estimated that a large majority of the professorate will need to be replaced during this period. Enrollments in graduate schools in the arts and sciences fields have declined in recent years, and as a result there is a smaller crop of new Ph.Ds. Further, there are significant pressures to increase the gender and racial diversity of the academic profession, often through 'affirmative action' programs that identify minorities and women. In many fields, especially in the sciences, there are very few young PhDs who are women or minorities, thus making it very difficult to expand minority participation. The academic profession faces some difficult challenges at the present time. Funding cutbacks have affected the professorate in several important ways. Salaries have not kept up with inflation in the past several years, producing a declining remuneration structure. Research funds have been cut, making it difficult to pursue research in many fields and placing special strains on basic research, where funding from corporate sources is generally unavailable. Hiring freezes have meant that mobility has been limited. The American academic profession faces some difficult times.

America's private universities face especially difficult problems in the current fiscal and enrollment climate. There has been a gradual shift in enrollment pattern from the private to the public colleges and

universities over the past several decades. About 80% of students now attend public institutions. This change has taken place for a number of reasons. The increasing quality and availability of public universities has been the most important factor. The high cost of private institutions has also been a key element. In a period of economic recession when the availability of loans and scholarships has been limited, many families search for the lowest cost education available, and public universities typically cost less than half of the tuition at a private institution. In the United States, private institutions tend to cluster at the top and at the bottom of the academic hierarchy. Many of the nation's best institutions, including Stanford, Columbia and even Harvard have experienced serious fiscal problems recently and have had to scale back academic programs. Less prestigious colleges, which rely on tuition income for their entire budget, face the possibility of bankruptcy and possible closure as a smaller pool of students looks increasingly to lower cost public higher education. Private higher education in America will survive, but it will very likely continue to shrink in size and scope. This is in many ways unfortunate, since private institutions have often more innovative and distinctive.

Financial constraints have been a hallmark of the recessionary 1990s. Academic institutions have been forced to reduce their budgets by cutting programs, raising class size, deferring the purchase of new equipment (including laboratory devices needed for research), limiting salary increases for professors, firing teaching staff, and of course, increasing tuition costs. Universities find themselves in a particularly difficult situation, since most of their expenditures are for salaries, and it is difficult to quickly cut budgets when staff are involved. Most institutions have managed, through careful budgeting and selective cuts, to maintain their core programs, but quality is beginning to suffer and both faculty morale and student access are declining. In some of the worst situations, for example at the University of Massachusetts, budgets have been slashed by close to 50% over several years, with massive losses in faculty and programs. The University, poised in the 1970s to join the top ranks of American academic institutions, no longer has any pretensions to greatness. It is just trying to survive. If Massachusetts is a precursor of wider developments, then the American academic system is in deep trouble.

It is clear that American universities are a key national resource and central to America's role in the 21st century. It is not surprising that educators and policy

makers from other countries look to the U.S. as a model for higher education development and have adopted many American innovations. The problem is that American higher education is already on a downward spiral that will inevitably lead to the loss of preeminence. If America's universities are significantly weakened, they will be unable to play the leadership role in science, scholarship and in the post-industrial development of the coming decades. The good news is that the slide is not yet irreversible nor is academic excellence extraordinarily expensive. Coordinated policy at the federal and state levels, with strong support from industry—a kind of 'industrial policy' for higher education that the Japanese have so successfully implemented in other areas—can stem the decline and maintain American academic leadership. Here are a few primary elements of such a policy:

1. A recognition that universities and colleges are resources of national importance—not just institutions to sink or swim with changing economic circumstances;
2. A commitment to basic science and scholarship and to the research role of the university. This means that laboratories and libraries need to be supported, that fellowships for graduate students be made available, that funds for research be provided not only by government but by the private sector;
3. A commitment to provide access to higher education to everyone capable of and desiring to study at the postsecondary level. This means that there must be scholarship and loan programs for needy students and, where needed, special help to students who require it; and
4. An understanding of the international role of the university in science, communication and in building of the post-industrial world. Knowledge itself is international—the university should be a self-consciously international institution as well.

Higher education must be a national priority. President Bush hardly mentioned the universities in his "Education 2000" master plan. State governments have been slashing public universities. Even the wealthiest of the private universities such as Harvard and Stanford face deficits. The United States is truly at a turning point in terms of higher education policy. The nation, with effort, financial resources and long-term commitment, can build on what is arguably the best academic system in the world or it can, through neglect and fiscal expediency, let this unparalleled resource decline.

Problems of Unrest in University Campuses

N. Venkataiah*

A review of history of campus unrest in various countries reveals that violent upheavals are often caused by the irrationality of local people, religious pre-occupations of students and institutions, role of universities in national revolutions, the use of educational system as an instrument of national unification and development, absolute rule, inadequate educational facilities, freedom movement, internal economic issues, radical political changes, extreme nationalism and patriotism and indigenous language and culture issues.

Let us make an attempt to examine the major problems of unrest in the university campuses in India in the past and at present.

1. Universities and students are increasing in number

Many of the educationists feel rightly that we have too many universities in the country and that some of them are of a substandard character. The prevalent opinion among the educationists is that there should be a curb on the starting of new universities. They also point out that the finances available should be utilised for strengthening and improving the quality of the existing universities instead of starting new ones. It is unfortunate that even after the new education policy (1986) was formulated and discouragement of proliferation of universities was recommended, the Central Government itself passed laws in May and October 1989 for the establishment of central universities in Nagaland and Assam. Therefore, Acharya Ramamurti Review Committee report has aptly pointed out that the Centre should practice what it preaches and not set a bad precedent for the States.

India has not only a large number of universities but also has a large student population, probably the third largest in the world. The students of higher education can do a lot of work, positive or negative. The student community in the universities, in general, is adversely affected by the attitude and conduct of their elders who are frequently observed violating the ethical and other values they themselves preach. Because of erosion of values the influence of bad examples is more on the students than of good examples.

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2. Violence in Campuses

In every university without any exception, students have been resorting to violence when their demands, reasonable or unreasonable, have not been conceded. They set fire to buses, destroy equipment and property, gherao Vice-Chancellors, Registrars and College Principals, throw out office records, pelt stones on glasses, stone the police when they appear on the scene to maintain order which is their duty and attack railway, bus and police stations. There is no limit to the kind of violence they resort to. The incidents of violence are sometimes due to regional, linguistic, communal, parochial factors. At times they have nothing to do with the campuses or organisation of the university at all.

It is generally agreed that much of the unrest in the campuses is due to political parties which encourage it to satisfy their own ends without any care for the larger interests of education or of the country. Students have become divided into as many groups as there are political parties in the country. Elections to university and college unions are fought among rival political groups. Without this backing by political leaders and unscrupulous politicians, the situation would not have become so bad. If the politicians are not interested in the campus politics, the academic-politicians of the campus viz., some teachers who are supporters of the politicians would approach them and involve them in the campus politics. In this race, university student leaders are no inferior to teachers in supporting or opposing the political activities in the campuses.

3. Other Causes for violence in the campuses

Apart from political interference and participation of political affinities of university/college teachers and students in politics, there are many other causes for campus unrest. With the experience of the past, the underlying causes of student unrest/agitations are not far to seek. These mainly are : (1) lack of proper academic atmosphere on the campus, (2) absence of respect for university authorities, (3) ideological frustration, (4) lack of aptitude on the part of students to carry on university level work, (5) lack of selective admission, (6) evil influence of mass media like films, T.V. and radio, (7) arbitrary demands of the students for postponement of university examinations which are scheduled to take place on certain dates, (8) disputes

created among students due to their union elections, (9) disputes in the election for hostel management, (10) non-receipt and non-payment of fellowships/scholarships, (11) non-payment of mess and other bills in the hostels, (12) non-students residing in hostels, (13) irrational demands of certain student associations, (14) problems of temporary (local) teachers, (15) delay in announcing the results, (16) opposing entrance examinations/semester schemes etc.

New Problems in Campus Unrest

In addition to the problems already existing on the campus as listed in the previous paragraphs, a few new problems are cropping up at a faster rate. These problems play a vital role in the campus unrest.

a) Vice-Chancellor's appointment is political

Gone are the days when the Vice-Chancellors were appointed based on their intellectual brilliance or for their monumental achievements in the field of their vocation. Scholars of national and international repute irrespective of their language, region and caste were invited to be Vice-Chancellors. They were respected on the campuses and elsewhere for their knowledge, impartial and wise decisions in the university administration. Now-a-days most of the Vice-Chancellors are being appointed on blatantly narrow caste and political considerations. This is a fact that has to be reckoned with. The post of Vice-Chancellor which has been held in high esteem is sometimes occupied by too small a person. The process of selection of Vice-Chancellor—formation of search committee, giving a panel of four or five potential candidates and the selection of one person by the Chancellor from among the panel of names involves at every stage a lot of power politics. Though it cannot be said that in the case of selection of each Vice-Chancellor politics is involved, it is certain that goodwill of politicians at the state level is very much required for a person to become Vice-Chancellor. A Vice-Chancellor who has got lot of favour from the politicians for his appointment cannot remain neutral and therefore will go out of the way to please them on occasions like recruiting the teaching/non-teaching members. A Vice-Chancellor who got disgusted with his work remarked thus : "A Vice-Chancellor cannot function now-a-days without being a politician. It is tragic that this kind of situation has arisen. But I firmly believe that if a Vice-Chancellor becomes a politician, he has no business to remain in his office". When the Vice-Chancellor becomes partisan in his outlook and loses objectivity, then he becomes controversial and subsequently the unrest on the campus both from the

students and teachers increases.

b) Problems created by the predecessor Vice-Chancellor

It is unfortunate that some Vice-Chancellors would insist to have second term in the same university. In order to gain cheap popularity which would help them directly or indirectly to continue in the same position for the second term, they go out of the way to relax the university rules and regulations like filling up teaching and non-teaching posts without concurrence from the concerned State Government. If the same Vice-Chancellor is not given second term, it becomes very difficult for the new Vice-Chancellor to deal with the situation. Withdrawing such appointments leads to the displeasure and serious consequences on the campus, continuing them in the service without necessary financial assistance from the State Government is impossible when the university has been facing financial crisis. Why should any Vice-Chancellor after having understood the academic and administrative problems of the university for three years and while relinquishing the post create such problems for his successor?

c) Politicisation of teachers and students

It should be the responsibility of the Vice-Chancellor who is the chief administrator of a university to bring to it the most competent teachers, provide them with proper and adequate facilities for research, teaching and extension work and see that they work with integrity and sense of responsibility. Then only a university becomes centre of learning and helps the country and society to make progress to the extent to which higher learning can help it. We know that the main objective of a university is the acquisition of knowledge and its transmission to the youth of the country. That is why emphasis is placed both on research and teaching. The Vice-Chancellor sometimes becomes quite powerless in the matter of achieving the true objectives of the university when he is dominated by the members of Syndicate, Senate, Academic Council and the other university bodies, especially non-teachers who are under the sway of outside political parties. The Vice-Chancellor gets frustrated when the Syndicate, Senate and Academic Council members do not cooperate with him in taking such decisions which would help the progress of the university. Besides, at times teachers also find it profitable to ally themselves with political parties to secure personal advantages in the matter of promotion. Some students and teachers become more interested in extending the influence of various political parties inside the campus, go on talking about the campus politics under the trees and on the roads and find little time for

their legitimate work — teaching, research and extension work. They form cliques which create number of problems on the campus. What can a Vice-Chancellor do in a university where students and teachers are engrossed in politics and evince no interest in education? It is now a matter of common observation that corruption is wide spread in all walks of life. How corrupt and indisciplined are our people's representatives like legislators and other public officer bearers! The students would emulate them. The students find nothing wrong in being indisciplined when the leaders of the country are no better in this respect. Our society has been corrupted by men in power. The worst consequence of this is that it is corrupting the youth who are to become the future leaders of the country.

d) Rotation of headship

The image and prestige of the Heads of Departments influences the discipline in the campus. The status of the Heads of Departments on the campus is very much diminished on account of rotation. Though most of the members of the teaching staff would like to be called as Heads, they don't want to shoulder the responsibility as expected of them. In principle, the rotation of Headship is very much welcomed. But how many Heads under rotation are able to maintain the required discipline in and outside their departments is a major question for the university authorities to think seriously. The long range developmental programmes of the Departments are badly affected. The Heads under rotation are not able to enjoy the esteem of the students and exert much influence on the student community. The Heads who can coordinate, lead, motivate and inspire the students along with the accountability are becoming less and less in number on the campus. Therefore, the progressive erosion of the image and standing of the Heads of Departments and institutions has done incalculable harm to the peace in the campus.

e) Requirement of 55% of marks at P.G. Degree examination

The UGC has stipulated that a candidate should obtain not less than 55% of marks in the P.G. degree examination to become eligible for appearing in the J.R.F. test and lecturer's examination. Though this stipulation seems to be quite essential from the point of quality of academic standard, it has its own repercussions. Every student appearing for P.G. degree examination is now demanding a minimum of 55% of marks for satisfying the U.G.C. requirement. If one deserves and gets 55% of marks and above, there is absolutely no difficulty. But the fact remains that even

the undeserving candidates are threatening the concerned teachers to award them not less than 55% marks irrespective of what they write in the examinations. Of late, the trend in universities is that the students get united and agitate for reexamination. If the university authorities do not concede, the students break glass panels and set fire to the departmental property. Still dissatisfied with these destructive activities, they sometimes beat teachers whom they suspect as responsible for their getting less than 55% of marks. Many universities are confronted with this severe problem. Every university with its own wisdom has to seek a quick solution to this problem.

f) Mistrust among high level university authorities

If there is mistrust between Chancellor and Vice-Chancellor, Vice-Chancellor and Dean, Vice-Chancellor and Registrar, Vice-Chancellor and Senior Professors, the problem of unrest on the campus will increase. If there are differences of opinion, it is better to sort them out by arranging face-to-face talks. People at the helm of affairs should break the walls of mistrust at the earliest in the interest of education. It is very bad and sad that the Vice-Chancellors in the Universities of Bihar State were removed by the Chancellor without following the course of natural justice. If a Vice-Chancellor who is academic and administrative head of a university has to be at the mercy of the Chancellor and has to step down at any moment, we cannot expect the campus of that university to be peaceful. Mutual understanding and confidence among the high level university authorities will go a long way in improving discipline of the students on the campus.

g) Lack of basic facilities

The educational institutions exist only to serve the students. The genuine interests of the students should not be neglected. The basic facilities which are necessary to pursue one's studies should be adequately provided. Sometimes the causes of student unrest in the campus are due to inadequate facilities in the hostels and canteens, lack of proper water supply and cleanliness, lack of proper facilities for games, sports and transport, lack of proper library facilities etc. Lack of basic facilities coupled with indifferent attitude of faculty members, administration and mismanagement are to some extent responsible for campus unrest.

h) Lack of coordination between different administrative branches of the university

We come across, though not frequently, such situations where there is lack of coordination between the functioning of the Vice-Chancellors, Registrars,

Development Officers, Finance Officers and Audit Officers. Many universities do not have their own Finance Officers. The practice is that the State Government will depute one of the senior persons from its Finance Department as Finance Officer in the university. The Finance Officer in a university has to play a very crucial role in managing the finances. Though the Finance Officers are proficient with financial rules, their knowledge about the academic activities and financial management of universities is very much limited. The finance branch in the university is well known for its queries and sending the papers/bills back to the Departments on one pretext or the other. The non-cooperative attitude, sometimes negative attitude, of the finance branch of the university leads to frustration, tension among the teachers and students.

i) Reservation of teaching posts in universities

In some universities, the reservation of posts is confined to lecturer cadre and the higher cadres viz., Readers and Professors posts are open for the selection from the general merit candidates. But in some universities the reservation principle applies to all cadres of teaching posts. There are instances in many universities that the reserved posts are not filled up due to non-availability of qualified candidates. In Karnataka State there is a Government Order that the reserved posts should not be filled from any other category of applicants. Further, if the qualified candidates are not available, the reserved posts should be kept vacant till the candidates of the reserved group are available. If the posts are vacant for long for want of qualified persons in the reserved communities and if they can't be filled up by other community persons, who are at loss?

j) Incompetent teachers

In the absence of competent and well qualified persons, any person with a minimum required qualification is likely to be appointed. It should be remembered that incompetent and ill-qualified teaching staff are responsible for lowering the standards and also in provoking the students to indulge in unsocial activities. When competency in teaching is lacking, such teachers may try to cover their weakness by supporting and strengthening groupism among the students. Measures have to be devised to weed out such incompetent teachers, though small in their number.

Are we pessimistic?

Perhaps one may say that we are rather pessimistic because only a few students indulge in mischievous activities and rowdiness or in cheating at the examination hall whereas quite a sizeable number of university students are still docile, good in their studies and be-

haviour. They perhaps sit in examination halls to pass honestly. When an honest student finds that rowdiness pays and cheating brings better results during evaluation, how long will he remain honest in the midst of such strong temptation? Like a rolling snow ball the present cult of indiscipline and violence is pervading the new entrants and if things are allowed to continue in this present form perhaps within the next decade there will hardly be any quiet and studious entrant in a university who will submit himself to an honest evaluation.

It may be noted that mischievous, ill-mannered and problem creating postgraduate students are always small in number. But they can control large number of students, with their muscle power, leadership qualities and sometimes threatening others for supporting their point of view. The university authorities must do something to curb the activities of such rowdy elements on the campus.

The effect of unrest

The odd part of the situation is that, in spite of such seriousness of the problem, no one seems bothered by this state of affairs. Perhaps power crazy officials, dangerous political bandits and corrupt students do not want to see an end to this menace. People are not fully aware of the real issues involved in this problem.

The fact of the unrest is that there is no area of education which is not affected by it. All the resources invested in education are wasted. The career of thousands of young men and women is ruined. Progress comes to a stand still. All attempts of planned educational reform cease to have a meaning in such an atmosphere. A heavy responsibility rests on universities, government and leading political parties who have to find ways and means of combating unrest and unless this is done the future of university education is bound to be bleak.

Some suggestions

Every university must try objectively to find out real and genuine causes of unrest in the campus and take immediate measures to wipe out the indiscipline on the campus. Good discipline demands a good education situation free from fear, frustration and dictatorial control. Teaching, research and public service—the three important functions of the university could be carried out only when the campus is peaceful. All the teaching, non-teaching staff and the research scholars have to work their way up the ladder of fame by dint of hard work.

The campus problems have been examined by various committees and commissions. As a result

various valuable suggestions are available. They include social justice, awareness of students' viewpoints by the Governments, review of policies affecting universities, increased financial aid to higher education, proper training of police for dealing with campus disorders, preparedness of the university to deal with campus unrest internally, political neutrality of universities, decentralising large campuses, restraint on the part of students etc.

Serious unrest can be cured by removing the causes of student alienation, correcting students' grievances, ensuring students' representation, defining administrative responsibility clearly, having open and agreed upon clear channels of communication, encouraging new approaches to teaching etc..

Conclusion

After giving a serious thought one permanent solution for campus unrest at sight is to reduce considerably the strength of students in postgraduate departments. Higher education, that too postgraduation studies, is not meant for every student who applies for it. Keeping higher education open to all without considering

whether the individual and society can profit from such education would only result in partial wastage of resources and the lowering of the standards and quality of higher education. There is nothing like a right to higher education in the absence of possession of the abilities required to profit from it. Only a limited number of meritorious students with ability and aptitude have to be selected by administering foolproof entrance tests.

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DEVI AHILYA VISHWAVIDYALAYA, INDORE

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C.P.MODI
REGISTRAR

Countrywide Classroom Television Programmes

An Appraisal

Jagannath Mohanty*

Harekrushna Sahoo**

Why this Study?

Since August 15, 1984 the University Grants Commission (UGC) has been telecasting the Countrywide, Classroom Television Programmes for improving the quality of teaching and promoting expansion of higher education. The advent of video and satellite technology has made it possible to take the programmes to the doorsteps of the learners and teachers in the most distant areas. It is, therefore, necessary that the production of quality programmes be given utmost importance. The programmes produced in the UK and US were telecast during the first few months and gradually these are being replaced by the ETV Programmes produced by the Educational Media Research Centres (EMRCs), Audio Visual Research Centres (AVRCs) and the UGC INSAT Project Coordination Cell. Consequently more than 60% of the programmes are indigenous. It is therefore imperative to study the quality of the programmes and to provide necessary feedback to different producing agencies like EMRCs & AVRCs etc. to make suitable programmes for the Countrywide Classroom project.

Objectives

The following are the objectives of the present study:

- (i) to study the countrywide classroom television programmes from qualitative aspects;
- (ii) to study the appropriateness of the programmes;
- (iii) to find out the strengths and weaknesses of these programmes; and
- (iv) to suggest appropriate steps for making the programmes more relevant.

Scope

The investigators observed ETV programmes sponsored by the University Grants Commission with keen interest and took a sample of 25 such programmes

produced by different agencies like EMRCs AVRCs and other foreign agencies in Germany and USA. The programmes were telecast during the period 12.08.1991 to 28.08.1991. The details of the programmes are given in Table 1.

Limitations of the Study

The study was confined to the UGC ETV Programmes meant for only college and university students telecast from 12.08.1991 to 28.08.1991. The data were collected on the basis of direct observation of the investigators.

Methodology

The investigators collected data regarding the objectives, content, format, visual aids, voice, language, pace, presentation of the topic, clarity of the content etc. of the UGC ETV Programmes with the help of an observation schedule.

Analysis and Interpretation

The collected data were analysed and interpreted in the light of its objectives, content, visual used, voice, language, pace, presentation, format etc.

Objectives

Any educational programmes must have certain instructional objectives. The investigators due to want of any information regarding the instructional objectives set for the programmes took some assumed objectives like knowledge, understanding and application etc of the UGC ETV Programmes for their own assessment. Table 2 shows the weightage given on the assumed objectives.

Table 2 reveals that 88 percent of the programmes have given maximum weightage on knowledge whereas 12 percent have given weightage to some extent only. 16 percent of the programmes emphasized 'understanding' objectives to a great extent whereas 28 percent programmes emphasized such objectives to some extent. Only 12 percent of the programmes emphasized application objectives to a great extent and 32 percent to some extent. Understanding and application objectives were not given due emphasis in 56 percent of the

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programmes. Hence it is evident from this table that due weightage has not been given to understanding and application objective.

Adequacy of Content

Table 3 shows that 92 percent of the programmes were adequate and 8 percent were inadequate in respect to content.

Different Formats

Table 4 shows that lecture with demonstration format was adopted in 32 percent of the programmes, lectures with graphics in 8 percent, interview with experts in 32 percent and documentary films in 25 percent of the programmes.

Visual Aids (Quantitative)

It is evident from the Table 5 that activities and real object were used in 40 percent and 60 percent of the programmes respectively whereas two dimensional and three dimensional aids were used in 40 percent and 20 percent of the programmes respectively. In three of these programmes (No.8,16 and 24) no aid was used and TV lessons were presented through talks and discussions.

Visuals (Qualitative)

It is found from table 6 that in 84 percent of the programmes the visuals were quite clear and only in 4% of the programmes visuals were partially clear. In 60% of the programmes visuals were quite attractive while in 28% programmes these were partially attractive. On the whole most of the countrywide classroom television programmes were clear and attractive.

Adequacy of exposition of visuals

Table 7 shows that activities, two dimensional and three dimensional, and real objects were used adequately in 36,40,16 and 52 percent of the programmes respectively whereas these visuals were inadequate in 44,44,72 and 32 percent of the programmes respectively. Exposure to visuals should be for longer duration in the programmes relating to science and technology.

Voice

Voice plays a vital role in the communication process. Distinct voice is very necessary for making the programme more effective. Table 8 shows that in 96% of the programmes the voice was quite distinct and only in 4 percent of the programmes it was partially distinct.

Pace

Speed of the commentary was also important for

success of the programmes. Table 9 reveals that in 96% of the programmes the voice was normal.

Language

From Table 9 it was found that the language of all programmes was English. In 28% of the programmes (Nos. 3,4,9,12,19, 20, and 30) English was spoken by foreign experts of Germany, USA and Japan with different intonation.

Major Findings

- (i) It was ascertained that knowledge objective was given more emphasis in 88% of the programmes whereas due importance was not given to other objectives like understanding and application.
- (ii) Most of the programmes were adequate in content.
- (iii) Formats in most of the programmes were lecture, discussion and interviews. Dramatization, quiz, problem solving approach were not given due emphasis.
- (iv) Interview with experts, documentary films, and lecture with demonstration were found more interesting.
- (v) In 84% of the programmes the visuals were quite clear.
- (vi) In 60% of the programmes the visuals were quite attractive.
- (vii) In most of the programmes the voice was quite distinct and was normal.
- (viii) Medium of all programmes was English.

Suggestions

- (i) The instructional objectives like understanding, application and skills should be given more emphasis while producing the programmes.
- (ii) Some programmes should be produced with the formats like dramatization, quizzes and problem solving approach.
- (iii) The topic to be telecast should be announced in advance with the names of their producing agencies.
- (iv) As the programmes are telecast during working hours and TV sets are not available in many colleges it is not always convenient for the students as well as the teachers to view them. Therefore the programmes telecast once in the morning hours should be repeated in the evening.

(v) Objectives of various ETV Programmes should be announced before the telecast or be publicised earlier.

(vi) Tele Clubs should be organised with the cooperation of colleges and universities.

(vii) Some ETV Programmes should be produced on various techniques of teaching and class management and organisation of co-curricular activities, etc.

Table 1 - Details of the ETV Programmes telecast during August, 1991

<i>S.N.</i>	<i>Date of Telecast</i>	<i>Title of the Programme</i>	<i>Producing Agency</i>
01.	12.08.1991	Dantiwada Project Participatory Water Management	EMRC, Gujarat University.
02.	13.08.1991	AIDS-II	EMRC, Poona.
03.	14.08.1991	Solar Research V	Transtel, Federal Republic Germany(FRG)
04.	14.08.1991	Destiny's People:Stories of South Carolina	United States Information Agencies.
05.	14.08.1991	Principles of Biosystematics IV	AVRC St. Xavier's College, Calcutta.
06.	16.08.1991	Sampling I	EMRC, Jodhpur.
07.	16.08.1991	Self Esteem in Children I	EMRC, Hyderabad.
08.	16.08.1991	A conservation of Edible Fungi	AVRC, Osmania University.
09.	19.08.1991	A Quantum Leap Forward	AVRC, St. Xavier's College, Calcutta.
10.	19.08.1991	History of Banking	EMRC, Hyderabad.
11.	19.08.1991	Operational Research Project	EMRC, Gujarat.
12.	20.08.1991	Nitric Acid	University of Florida.
13.	20.08.1991	Shake Table	AVRC, University of Roorkee.
14.	20.08.1991	Hypnotism	EMRC, Hyderabad.
15.	22.08.1991	Electrical Circuit	EMRC, Ahmedabad.
16.	22.08.1991	Contemporary Museology	EMRC, Hyderabad.
17.	22.08.1991	The Growth of a Poet	EMRC, Poona.
18.	22.08.1991	Computer Assisted Learning	AVRC, Anna University.
19.	22.08.1991	Portrayal of a People	AVRC, Jodhpur.
20.	22.08.1991	John Clifford on William Shakespeare	AVRC, St. Xaviers' College, Calcutta.
21.	27.08.1991	Unvailing Antarctica	AVRC, University of Roorkee.
22.	27.08.1991	Hypnotism II	EMRC, Hyderabad.
23.	28.08.1991	Speaking of the Environment	Federal Republic of Germany(FRG).
24.	28.08.1991	Why Geography?	EMRC, University of Poona.
25.	28.08.1991	Poultry Farming	EMRC, Gujarat University.

Table 2 — Distribution of Weightage on the Assumed Objectives

<i>Extent of emphasis on objectives</i>		<i>To a great extent</i>		<i>To some extent</i>		<i>Not at all</i>	
		<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
1.	Knowledge	22	88	03	12	—	—
2.	Understanding	04	16	07	28	14	56
3.	Application	03	12	08	32	14	56

Table 3 – Adequacy of Content of the programmes

<i>Overloaded</i>		<i>Adequate</i>		<i>Inadequate.</i>	
<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No</i>	<i>%</i>
—	—	23 (1, 2, 3, 4,5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 & 25)	92	2(6,8)	8

Table 4 – Distribution of programmes according to Different Formats

<i>S.No.</i>	<i>Name of the Format</i>	<i>No. of Programmes</i>	<i>%</i>
1.	Lectures with Demonstration	8(2,4,6,10,13,15,18,22)	32
2	Lectures with Visuals/Graphs	2(5,14)	08
3.	Interview with experts	8(7,8,9,16,19,20,21,24)	32
4.	Documentary Films	7(1,3,11,12,17,23,25)	28

Table 5 – Distribution of programmes according to Visual Aids

<i>Visuals</i>	<i>To a great extent</i>		<i>To some extent</i>		<i>Not at all</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Activities	10(1,3,11,12,13,14,15, 18,21,23)	40	8(2,4,5,6,7,10, 22,25)	32	7(8,9,16,17,19, 20,24)	28
2-Dimensional	10(4,5,6,9,10,12,13, 18,21,25)	40	10(1,2,3,7,11,14, 15,17,20,23)	40	5(8,16,19,22, 24)	20
3-Dimensional	5(1,3,5,17,21)	20	12(4,6,7,12,13,14, 15,18,19,20,23,25)	48	8(2,8,9,10,11, 16,22,24)	32
Real Objects	15(1,3,5,7,11,12,13,14, 15,18,19,21,22,23,25)	60	2(6,10)	08	8(2,4,8,9,16,17, 20,24)	32

Table 6 – Distribution of programmes according to the Use of Visuals

	<i>Fully</i>		<i>Partially</i>		<i>Not at all</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Clear	21(1,2,3,4,5,6,7,9,10,11, 12,13,14,15,17,19,20, 21,22,23,25)	84	1(18)	4	3(8,16,24)	12
Attractive	15(3,4,5,11,12,13,14,15, 17,19,20,21,23,25)	60	7(2,6,7,9,10,18,22)	28	3(8,16,24)	12

Table 7 – Distribution of programmes according to Adequacy of Visual Exposition

	<i>More than Adequate</i>		<i>Adequate</i>		<i>Inadequate</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Activity	1(11)	04	9(1,3,12,13,14,15, 18,22,23)	36	11(2,4,5,6,7,8,9,10,16, 21,25)	44
2 Dimensional	1(12)	04	10(4,5,6,9,10,13,17, 18,21,25)	40	11(1,2,7,8,11,12,14, 15,16,20,23)	44
3 Dimensional	1(17)	04	4(1,3,5,21)	16	18(2,4,6,7,8,9,10,11,12, 13,14,15,16,18,19, 20,23,25)	72
Real Objects	1(25)	04	13(1,3,5,11,12,13,14,15, 18,19,21,22,23)	52	8(2,4,6,7,8,9,10,16)	32

Table 8 – Distribution of the programmes according to the Clarity of Voice

<i>Distinct</i>		<i>Partially Distinct</i>		<i>Indistinct</i>	
<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
24(1,2,3,4,5,6,7,8,9,10,11,12,13,14, 15,17,18,19,20,21,22,23,24,25)	96	1(16)	04	—	—

Table 9 – Distribution of programmes according to Speed of Voice

<i>Quick</i>		<i>Normal</i>		<i>Slow</i>	
<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
1(3)	04	24(1,2,4,5,6,7,8,9,10,11,12,13,14, 15,16,17,18,19,20,21,22,23,24,25)		—	—

Table 10 – English spoken by Foreign Experts

<i>No. of programmes</i>	<i>%</i>
7(3,4,9,12,19,20,23)	28

CALENDAR OF EVENTS

<i>Proposed Date of the Event</i>	<i>Title</i>	<i>Objective</i>	<i>Name of the Organising Department</i>	<i>Name of the Organising Secretary/ Officer to be Contacted</i>
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
August 26-28, 1992	Second International ISKCO Conference on Cognitive Paradigms in Knowledge Organisation	To provide a forum for scholars working in the field of knowledge organisation	Madras Library Association in collaboration with Sarada Ranganathan Endowment for Library Science and University of Madras	Mr. S. N. Kumar Conference Secretariat, 5, Sivaganga Road, Madras-600 034
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty- First Century	International Council for Distance Education, in cooperation with Sukhothai Thammarath Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair – 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

Two Urgent National Problems

"The burgeoning population and the menace of AIDS are two urgent national problems. The need for restricting the size of the family is the need of the hour. This has to be presented to our people as a problem of their own survival and well-being. The message of having only as many children as can be properly looked after and cared for has to be made effective. People have to be made aware that if children are to become healthy earning members in order to enhance the economic and social levels and the quality of living in each family, their number is of vital significance," said Shri M. L. Fotedar, Union Minister of Health and Family Welfare, while delivering the Convocation Address at the Postgraduate Institute of Medical Education and Research, Chandigarh. Excerpts

This Institute which has a unique position not only because it has been one of the first institutions of its kind in this part of the country but also because it has enjoyed a very high degree of reputation. What is more the geographical location of the P.G.I. lends a new content to the idea of national unity, cutting across as it does barriers of region and religion. The country rightly looks upon this institution as a national asset in medical education and research. People from all walks, without distinction of domicile, have come to develop a faith in it as a healing centre and a source of succour. Hailing as I do from a neighbouring State, I feel emotionally involved with this premier institute of medical science.

Institutions are what human minds working there, make them. Having attained a pinnacle of glory as a Postgraduate Institute and a healing centre, the alumni of this prestigious institute have to get involved in the tasks and challenges that face the nation in the field of health, and well-being as a healthy nation. The country looks forward to your lending a hand in tackling the problems that are tugging at the nation's heart and soul.

The attainment of health is a social goal — not merely eradication of disease. It represents a positive state of health and well-being. Over the years, we have made considerable progress in fighting and eradicating some of the killer diseases which took a heavy toll of life in the past. A dreaded disease like small pox has been completely eradicated. Malaria, leprosy, and TB have been brought under control. Infant mortality has been reduced to a large extent. Expectancy of life at birth has increased. As we advance in tackling health problems and secure triumph over the older diseases, nature seems to be throwing new and more menacing challenges.

Presently, the world is faced with the scourge of Cancer and AIDS. Medical science had engaged itself in massive efforts, world over, in tackling these dreaded diseases and in research for finding effective remedies but we still have a long, long way to go. A vigorous campaign for prevention and precautionary measures has to be made as a part of the mission of every doctor.

Another daunting challenge for a vast sprawling country like ours is in

the sphere of basic health needs of people in rural and backward areas. Practical and imaginative approaches have to be thought of, ideas firmed up and vigorously implemented taking into account the needs of the local people as well as the difficulties and problems that confront our doctors deputed to these areas. Those of us who hail from rural areas and achieve excellence in the profession should not hesitate to serve the people in those surroundings. However, I agree that an environment has to be created which will make it easy to readjust in such areas.

The burgeoning population and the menace of AIDS are two urgent national problems. The need for restricting the size of the family is the need of the hour. This has to be presented to our people as a problem of their own survival and well-being. The message of having only as many children as can be properly looked after and cared for has to be made effective. People have to be made aware that if children are to become healthy earning members in order to enhance the economic and social levels and the quality of living in each family, their number is of vital significance.

This can be and should be done by all doctors as part of their profession and general treatment of patients wherever occasion arises. The trust that is reposed by the patient's family in a doctor makes it his sacred duty that he offers wise counsel in respect of adoption of the small family norm. Let us accept it as a challenge and work with a missionary spirit and zeal to achieve this national objective.

At present, there is no single institution which is taking a holistic view of the manpower needs for health care in the country, as well as taking initiatives for achieving na-

tional standards of high excellence in medical education. There is also the paramount need to reorient medical education in order to meet national objectives in respect of health care. In this context, a Commission on Medical Education on the pattern of the University Grants Commission appears to be an urgent necessity. We have appointed a high powered Committee to examine the matter in its totality.

There is need to create public confidence in the selection of people to man faculties in premier institutions. The quality of scientific output in an institution like PGI is determined by the quality of its scientists. It is our aim not only to restore the status and the distinct identity of our scientific medical community in the public mind but to heighten the status of professionals and give them a genuine sense of pride. I need hardly say that the institutional framework in India has the basic strength and resilience but the need is to develop systems and conventions by which selections in these institutions are not only fair and equitable but are also perceived to be so.

I am told that nearly a million people receive medical aid here in different departments, every year and about 340 doctors and nurses graduate from this prestigious institute. I have also been informed that the Institute, despite all that it is doing is not able to meet the rising expectations of the people. One important reason for this is overcrowding which, in turn, leads to inadequate health facilities. As all of us are aware, Government hospitals cater to the most deprived sections of our society. Due to increasing pressure of numbers, quality of service in these institutions is bound to suffer. We have given the highest priority to improve services in Central Government in-

stitutions like the PGI. We have drawn up a time-bound programme to bring about a perceptible improvement in the functioning of these institutions.

We have set before ourselves the national objectives of removing social injustice and economic inequality. Medical scientists can play a pivotal role in eradicating these disparities. I have no doubt that as you step out into the wider world as healers of men and women in distress you will look upon your tasks to combat the snowballing problems connected with health and disease as a mission of service and dedication. Your profession is one of the noblest professions and you should

be proud to belong to it. It would perhaps be fitting to quote here a message from Shrimat Bhagwat for those who have chosen this sacred vocation.

*"I do not desire any kingdom;
nor heaven nor re-birth.
I desire only the power
to remove the suffering
of living things.*

(Bhagwat 9.21)

By helping alleviate human sufferings and by rendering a healing touch you will bring glory to your Almamater and radiate far and wide the sparks of the mission it embodies.

NATIONAL LAW SCHOOL OF INDIA UNIVERSITY NAGARBHAVI, BANGALORE-560 072

National Law School of India, the only Law University in the country sponsored by the Bar Council of India and established under Statute in 1987, is looking for promising and experienced teachers committed to achieve excellence in different branches of legal education and Scholarship. The University at present has plans to recruit teachers in the categories of Professors, Associate Professors and Assistant Professors. These positions carry the pay scales as prescribed by the University Grants Commission with allowances as determined by the University from time to time which at present correspond to Central Government allowances.

Besides posts in law subjects, Asstt. Professors in Social Science subjects viz., Economics, Sociology, Political Science and History are also proposed to be selected.

Interested persons with requisite qualifications and experience may obtain from the undersigned the prescribed Application Form along with other relevant details by sending a self-addressed envelope (affixing postal stamps worth Rs.2/-). The completed applications should reach the Registrar by Registered Post at the address given above on or before 30th December, 1991.

REGISTRAR

Relevance of Higher Education

The National Media Centre recently organised in New Delhi a convention on relevance of higher education in socio-economic transformation. Inaugurating the convention the Union Minister for Human Resource Development, Mr Arjun Singh said that the nation had not been able to achieve the goal of providing free primary education. The educationists and sociologists should look at the issue afresh and suggest measures for its speedy implementation. He admitted that there were many shortfalls in the higher education setup. These were obvious and required more attention, he said.

He said it was wrong to say that the educational setup for the country was absolutely mismanaged after independence. A qualitative change had taken place in the educational facilities in the last 44 years though a lot still needed to be done. He hoped that the education sector would get greater priority in the Eighth five-year Plan.

In his keynote address former Union Minister Dr Karan Singh said the educational setup needed total revamping. What was needed was an entirely new pattern of comprehending realities. Tinkering here and there with the present setup would not prepare the nation to face the serious challenges.

He stressed the need to base the education policy on the old and rich traditions which hold as good even centuries after their formulation. No system in the world had so clear commitment to the cause as the Indian. The education system should not be denigrated as it had the

potential to aim at excellence.

He strongly advocated paying special attention to women's education. The success of most of the plans of national development would depend on women's education who needed to be re-empowered.

Dr Karan Singh also suggested to inject a certain desirable value-system for which India was known for centuries. All crises faced by the country were due to erosion in the value-system. In fact this value-system should be made a part of the educational planning, he added.

He opined that the religions had a greater relevance in making the education system more meaningful. While signifying the relevance of Vedas and Upanishads in creating a value-based society, he said it was wrong to say that teaching Vedas was communal. He wondered why a section of the country's intelligentsia was allergic to religion. He held them responsible for dereliction of duty for the last 44 years. India has a multi-religious background which should be kept in mind while formulating education policy.

Dr Singh rejected the concept of brain-drain. If we cannot give them opportunities, why deprive the experts in various fields of opportunities abroad. Ultimately, they do lend helping hand in the development of the country either through their expertise or economically.

The Chairman of the University Grants Commission, Prof G. Ram Reddy, was the chief guest in the

session on "Education and social tensions".

Prof S.P. Punalekar from the Centre for Social Studies, Surat, who presented a paper "Education and Development : A Reflective Note", observed that systems had to be developed whereby teachers were given more responsibility and were more accountable. The necessity to evolve the new education policy, was to some extent, an admission that there were serious gaps and shortcomings in the old policy. The new policy must then be conceived as a response to the changing social needs and anxieties relating to education including higher education.

Dr Bharati Roy, Pro-Vice-Chancellor, Calcutta University, stressed the need for making higher education accessible to the disadvantaged sections of society, the Scheduled Castes and Scheduled Tribes and the minorities. She added that universities must remain autonomous to be free from political interference.

Mr O.P. Tandon, Registrar (Academic), Banaras Hindu University, stated that there was a great deal of tension in the areas of enrolment and evaluation of students and the training of teachers. Academic staff colleges just touched the fringe of the problem.

Dr S.K. Agrawala, Secretary, Association of Indian Universities, stated that the universities were completely "squeezed", they did not have the power to appoint teachers or to make payments without the prior approval of the State Government. The funding given by the State was totally ad hoc and had no norms, he added.

Among the first and foremost measures suggested by the participants in the convention was to delink degree from employment. It was pointed out that in most jobs, the university degree had no relevance. "B.A." had become worse than a waste paper. The insistence on degree had corrupted the system beyond recognition. The degree should be a pre-requisite for only such jobs in which university education was absolutely necessary.

Expansion of technological systems, introduction of procedures to ensure responsibility and accountability and to monitor performance by the academic community, were among other proposals formulated by the convention.

The convention demanded that an independent commission be appointed to inquire into political, bureaucratic, commercial and other influences in the field of education. The commission must go into the question why the reforms suggested by earlier commissions and committees had not been implemented.

Several speakers emphasised that the electronic media had not been allowed to play its full role in support of education and literacy.

Highlighting the part played by English language, it was pointed out by some experts that there were very few text and reference books in Indian languages on modern subjects. Those depending entirely on Indian languages were lagging behind the others securing instruction through English medium in India or abroad. The gap between two sets of students was increasingly becoming bigger. This had already created an elitist society which was engaged in recycling within itself. The most logical way to undo this will be to restore the rightful place of English in education.

Experts said that teaching of English will provide access to science and technology. And, without its knowledge, there will be an information gap and the victims will be students from rural areas where once English was taught from early stages. English teaching will also give a global view to education, experts believed.

It was argued that the entire educational system had become loaded with imbalances and distortions. When a district was today celebrating the success of 100 per cent literacy, the State concerned was automatically celebrating the failure of the constitutional commitment (Article 45) which had enjoined upon it to provide free and compulsory education to all children upto the age of 14 by the year 1960. Evidently, the country had drifted from "Education for All".

It had adopted the model which could provide education only to some. This had adversely affected the standards at the university level also. Without education to all at the ground level, no nation will be able to attain its objectives. Delhi University Vice-Chancellor Upendra Baxi commented, "Illiteracy is the extreme kind of political censorship".

Other recommendations of the convention were: Higher education could be funded by non-State agencies in the form of aid or by encouraging them to become self-supporting.

In view of the rising cost, college and university fees be raised adequately and in future be indexed.

Provision should be made for merit scholarship for the poor and the disadvantaged.

Immediate steps be taken to delink jobs from degrees. Only

those jobs for which university education is absolutely necessary, should have degree as a pre-requisite.

The West Bengal Governor, Prof S. Nurul Hasan, in his address to the closing session said, access to higher education was now a major issue since the hitherto deprived sections were taken keen on partaking in it. "Higher education is being thought of as a status symbol," he said.

Prof Hasan said the quality of education at the higher level had deteriorated because the teachers were "not applying their minds". He referred to the problem of resources and felt there should be a good viable college in every district with plenty of hostel, library and laboratory facilities and each panchayat should sponsor students to such colleges.

Over hundred academics, social scientists and media persons participated in the convention.

New Information System

A Delhi University college research team is reported to have developed India's first Geographic Information System (GIS), opening up a new avenue of information utilisation for planners, decision makers and market researchers.

GIS, a computer technique integrating different data into map forms, developed by Kirori Mal College researchers, is very new and revolutionary even in Europe and North America. To begin with, the project covers Bihar State.

GIS converts data on physical and quality attributes into information and flashes them in map forms on computer screens. According to Dr (Mrs) Manosi Lahiri, the Bihar GIS project leader and senior lecturer of the Kirori Mal College, it is

a new and important tool for natural resource planning, product marketing and law and order maintenance in the highly developed countries.

Dr Lahiri said the Bihar GIS, she and her team just completed, was "today the most comprehensive repository of digital data on Bihar and is available for access by various users". The information related to State's demography, education, health, communication and almost everything of concern to planning and project implementation, she added.

Dr Lahiri hoped that use of GIS by different agencies would enthuse development of similar information systems by others for other States.

Narrating the background of the project, she said the Kirori Mal College, being a geography teaching institution, was keen on trying a GIS project. The financial support for the project was provided by the International Development Research Institute (IDRC), a Canadian Government agency promoting developmental research in Third World countries.

Dr Lahiri said Bihar was selected as the Planning Commission and the Centre for Policy Research were concerned at the slow rate of economic development in the State. Besides, it was realised that data available on Bihar were weak and scattered.

Dr Lahiri said the Bihar GIS would help a planner, for example, to identify in a second the tribal areas that need a school in the next annual plan.

Other agencies like the people or the Chief Electoral Officer can calculate from GIS data the forces needed in times of social tensions or elections.

However, Dr Lahiri felt the most

important use of GIS in Bihar would be to monitor the progress of project implementation. Conventional project monitoring is done solely on the basis of funds allocated and spent and not on the physical progress of the infrastructure to be built, she added.

Mr Vijay Pande, regional manager of the IDRC, said the Canadian Government agency extended financial and technical help to the Bihar GIS project because it could aid the development of a very populous but economically backward region. He added that it was the first ever GIS project IDRC supported anywhere in the world.

Varsity-Lab Nexus

Delivering the ninth Meda Kasturiranga Setty memorial lecture in Bangalore recently, Dr. V.S. Arunachalam, Scientific Advisor to the Defence Ministry, said harmonious working ties among research laboratories, universities and production agencies were the need of the hour to help the country meet the challenges of competitive world economies.

Dr. Arunachalam said the limitations suffered by Indian products due to poor quality and packaging could be tackled by the laboratories. Unless the laboratories reorganised themselves to work better with the universities and production units, India would be converted into another Singapore, where the market was flooded with foreign goods. "But we are a country of 800 millions. If we do not use the millions of scientists and engineers, we will abuse them. It is about time our laboratories generate both work and wealth. Otherwise we will be doomed", he warned.

Dr. Arunachalam, who was speaking on "research, develop-

ment and technology role of laboratories", deplored the "class distinction" practised in our laboratories. Who should man a laboratory was often the all-important question. "We have failed to recognise that everybody is needed in a laboratory, whether it is a mathematician physicist or an engineer. The only qualification required is excellence", he added.

He said "lack of work, responsibility and commitment are associated with freedom and misused with licence". Tolerance and an ability to work with youngsters was the only way to ensure that laboratories do not breakdown into chaotic unions, he said.

Dr. Arunachalam also regretted that the achievements of research laboratories were underestimated. Much of the work done in Indian universities in 1930s had been published in foreign journals. However, the university laboratories were neither adequately funded nor enjoyed society's recognition. There was also an absence of continuous induction of young talent.

Dr. Arunachalam said science and technology were invariably doomed for frustration. "Unless we cultivate the patience to wait for a technology to cash on, our products will be doomed". He cited the success of the "society concept" at the Defence Metallurgical Research Laboratory in Hyderabad, and said the laboratory had signed a memorandum of understanding with several industries for transfer of the technologies developed.

Research Councils in Varsities

The Andhra State Council of Higher Education proposes to establish Research Councils in all the universities in the State to coor-

dinate research work at university level. This was revealed by Mr. P.K. Doraiswamy, Council Chairman in Tirupati recently. He said that a State Research Board would be set up at Hyderabad.

The Chairman said that the Council was planning to frame uniform rules and regulations for the teaching and non-teaching staff of all the universities in the State. There was a need to introduce inter-university transfers among both the categories of the staff, he stated and added that he would discuss the matter with the Vice-Chancellors and the members of the union shortly.

He said that the teachers 'quota' for admissions into postgraduate as well as engineering courses was unconstitutional.

The Council also proposed to empower the universities to send teachers abroad, he said.

The State College Service Commissioner would conduct an eligibility test for recruitment of teachers for the university colleges and affiliated degree colleges in January next as per the guidelines of the UGC, he said.

Nalanda University Contact Programme

The Nalanda Open University, Patna, recently organized a Contact Camp for the benefit of students admitted to the Certificate Course on Food and Nutrition of the University.

The Camp was inaugurated by Dr. Kumar Bimal, Vice-Chancellor. In his address, he stressed the importance of the course in the context of latest trends in Geo-Politics of Food-Aid for developing countries, and the Nutrition Intervention Programme adopted by different

departments of Government. Emphasizing on present day population explosion in Afro-Asian countries, deterioration in environmental balance and inadequate conventional foodstuffs, though produced at their maximum saturation levels, Dr Bimal felt that it had become imperative to explore new substitutes of traditional foodstuffs to act as food supplements.

It was also reiterated that production of cereals in Afro-Asian regions was far below of the average world level production. For instance, out of about 150 countries of the world, more than half of them were at present unable to maintain minimum standard of dietary requirements of 3000 calories per day. In the interest of regional food-cum-nutritional self-sufficiency, it was necessary for all countries to accelerate the pace of progress on one hand and to maintain their independent identity on the other.

Papers on different topics pertaining to Food and Nutrition were presented. These included: (i) Dietary requirements during pregnancy and child-birth; (ii) Food policy and programme of the Government and consumer consciousness; (iii) Balanced diet at low-cost and food preservation; (iv) Nutritional requirements of human body; and (v) Food types/their nutritional contents/choice of food materials/methods of cooking and food preservation, etc.

Educational audio-video cassettes, prepared by Electronics Trade and Technology Development Corporation Ltd., New Delhi—based on course materials prepared by Indira Gandhi National Open University, New Delhi—were also displayed.

Shri Deen Gopal Mahto, Registrar, who proposed the vote of thanks, outlined the important landmarks through which the

university had progressed since its inception.

A New Journal

To cater to the long felt needs of scientists working in the area of heterocyclic chemistry a new monthly journal, 'Indian Journal of Heterocyclic Chemistry' has been launched recently. Dr R.S. Verma of Department of Chemistry, Lucknow University, will edit the journal with active cooperation from distinguished scientists in universities and research institutions. The journal is being published in association with National Academy of Chemistry and Biology (INDIA), Lucknow, a registered body under the Societies Registration Act 1860 and devoted to spread of knowledge particularly in the field of Chemistry and Biology.

As is well known Heterocyclic chemistry is an important area of chemical sciences. Nearly half of chemical compounds found in nature have heterocyclic rings incorporated in their structures. Nearly all the alkaloids are derived from heterocyclic moieties. Heterocyclic compounds play vital roles in metabolic processes in the living system. Heterocyclic purine and pyrimidine bases constitute genetic material. Some of the essential amino acids like proline, histidine tryptophan and vitamins like thiamine, riboflavine and pridoxine are heterocyclic in nature. Then we have natural pigments like chlorophyll which traps solar energy and hemoglobin which transports oxygen.

Besides, there are a number of heterocyclic hormones such as kinetic and serotonin. In addition there are pharmacodynamic heterocyclic compounds used as anticancer agents, CNS drugs, analgesics, antimalarials, antifilarials and pesticides.

The journal is aimed to serve heterocyclic chemists working in these and related fields.

Sankaracharya Sanskrit University

The Sankaracharya Sanskrit University, to be established in Kaladi (Kerala), the birth place of Adi Shankara, will start functioning from August next year. The foundation stone for the university building complex was laid recently by Sri Bharathi Theertha Swami, Sringeri Sankaracharya.

Blessing the project, the Swami said the ancient Indian culture could be preserved only by nurturing Sanskrit, the mother of all languages.

The new university is the first Sanskrit Mahavidyalaya in the South and the fourth in India.

The idea of setting up a Sanskrit university in the South was mooted at a vedic sammelan in Hyderabad in 1985 in the presence of the then Sringeri Sankaracharya. The Chatterjee Commission set up by the Centre to recommend ways to propagate Sanskrit studies suggested Kaladi as the ideal location for a Sanskrit university.

The Centre in 1985 gave Rs. one crore grant to the Kerala Government for setting up the university and the latter, in its revised budget, earmarked Rs. 10 lakh for this. The Sringeri Swami made a donation of Rs. 5 lakh.

About 75 acres of land close to the Sankara Stupa are being acquired for the university campus.

Kerala Chief Minister Mr. K. Karunakaran expressed the hope that the university would not only become a national centre for re-

search and study of Sanskrit but would also attract scholars from across the world to do research in Sanskrit.

Prof. Indiresan Appointed to the BEL Chair

Prof. P.V. Indiresan of the Centre for Applied Research in Electronics has been appointed to the BEL Chair in Sonar/Signal Processing at the Indian Institute of Technology, Delhi. Instituted by the Bharat Electronics Ltd., Bangalore, the main objective of this Professorial Chair is to promote research and academic work in the field of Sonar/Sensor Signal Processing. Responsibilities of the Chair include contributing towards deeper understanding of new techniques in Signal Processing, building up a research group in the area at IIT Delhi, interaction with BEL to identify areas of research and execute specific sponsored projects financed by BEL.

Water & Land Management Institute

A Water and Land Management Institute (WALMI) is proposed to be set up in Lucknow to ensure adequate and proper utilisation of water for agricultural purposes, maintenance and upkeep of water resources and impart training in land management. This was revealed by the Uttar Pradesh Irrigation Minister Mr. Om Prakesh Singh while addressing a meeting of the officers of irrigation department recently at Lucknow. He said that this institute would find out ways and means to use water properly for different crops. This would also help check the wastage of water and provide training to farmers and irrigation engineers regarding

management of water resources.

Mr Singh said four other training centres would be opened in Bareilly, Jhansi, Meerut and Gorakhpur.

The Irrigation Minister said the officers and engineers connected with this institute had been asked to study the progress of similar schemes in other States in order to benefit the farmers of the State.

New Courses, New Centres for Guru Nanak Dev University

The Guru Nanak Dev University proposes to start M.A. (Honours) in Punjabi as a specialised course. It also proposes to set up a "centre for immigrants studies". This project is likely to be funded by certain U.K.-based institutions.

The Department of History of the University has decided to observe the Prof Sahib Singh Centenary celebration and the 200th birth anniversary of Hari Singh Nalwa.

A research centre for Sikh music (Gurmat sangeet) is also proposed to be set up. A special cell is being set up in the Department of Town Planning to undertake a project on the study of the Sikh architecture.

On the recommendation of the UGC, the university will start a three year B.Tech course in sugar technology instead of M.Sc. course in this subject. A grant of Rs. 50 lakh has been sanctioned for the building of the Sugar Technology Department. Another Rs. 60 lakh has been received for development of the B.Tech (Town Planning) course.

The university has decided to start "university information service" at Jalandhar, as a mini-administrative wing of the university. This will cater to the colleges of Jalandhar and Kapurthala districts.

The process for establishing the much delayed regional centre at Jalandhar has also got underway with the acquisition of land nearly 18 acres of which is being gifted to the university.

Andhra University Convocation

The Sixty-second convocation of the Andhra University will be held on 5th January 1992. H.H. Dalailama, Noble Laureate will deliver the Convocation address, according to a Press Release issued by the University.

Baroda Varsity to Host Science Congress

The 79th session of the Indian Science Congress will be held at the M. S. University of Baroda from Jan-u-ary 3 to 8, 1992. Prime Minister Shri P. V. Narasimha Rao will open the Congress which will focus on "Science Population and Development."

About 5,000 delegates from India and abroad are expected to attend the Congress. A science and technology exhibition would also be organised on the occasion.

Verma, Project Co-ordinator, All India Co-ordinated Project and Tuber Crops and scientists working in the project were among those who participated in the seminar.

HAU Veterinarians Develop New Drugs

Drs. R.P. Uppal and C.L. Yadav of the College of Veterinary Sciences of the Haryana Agricultural University, Hisar, have developed new drugs entitled Closentel and Ivermectin for the control of worms in sheep and goats. After conducting two years research and investigation on the goats and sheep of the animal farm of the University, these veterinarians say that these drugs have been found 100 percent effective for the total elimination of worms in these animals.

According to these veterinarians the intestines worms (gastrointestinal nematodes) have ever been the cause of major economic losses for the breeders of sheep and goats. They have established that the conventional drugs used so far for the control of worms have now become resistant due to their indiscriminate and irrational use with the result that regular deworming with these drugs has failed to check the mortality among sheep and goats. With the development of the new drugs Closentel and Ivermectin, particularly the former, the economic losses caused by nematodes in animals will be checked.

We Congratulate

Dr Sanjay Chaturvedi of the Department of Political Science, Panjab University, who has been awarded the Nehru Centenary British Fellowship for post-doctoral work in geo-political Antarctic Studies at the University of Cambridge, England.

News from Agricultural Universities

Seminar on Utilisation of Tuber Crops

A two-day national seminar on 'Utilisation of Tuber Crops' was jointly organised by the Indian Council of Agricultural Research and the Konkan Krishi Vidyapeeth at Dapoli recently. Shri L.R. Hatankar, State Minister for Public Works and Fisheries, Government of Maharashtra was the chief guest at the inaugural function. In his inaugural address Shri Hatankar said that a variety of tuber crops were observed in Konkan region, however the commercial and scientific cultivation of these crops was rarely observed. He explained the importance of tuber crops from the point of view of nutrition, income and raw material for industries. Considering the tremendous potential available for cultivation of these crops in the Konkan region, he urged the farm scientists to make all out efforts for increasing the per unit yield of these crops.

Dr. S.B. Kadrekar, Vice-Chancellor, Konkan Krishi Vidyapeeth, who presided, said that the tuber crops were mostly grown by the marginal, small and tribal farmers

on relatively poor soils. The production potential of these crops was very high. However, there were certain constraints in cultivating these crops on commercial basis such as unavailability of adequate seed, high cost of seed, undue expenditure on training vines and providing support, fibrousness and poor keeping quality. He urged the scientists working on these crops to evolve appropriate technologies for overcoming these constraints. They should also explore the possibilities of including tuber crops as the inter-crops in the orchards of mango and cashew plants, he added.

Dr. D.V. Rege, Former Director, University Department of Chemical Technology, University of Bombay, in his keynote address reviewed the research and development activities pertaining to tuber crops in India. He appealed that all efforts should be made for the growth and development of the neglected tuber crops.

Dr. Ramphal, Assistant Director General, Indian Council of Agricultural Research, New Delhi, Dr. S.P.

Countrywide Classroom Programme

Between 16th December to 21st December 1991 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission

1.00 p.m. to 2.00 p.m.

16.12.91

"Remote Sensing-XV:
Principles of Image Analysis"
"Rendz-Vous at Depth 4,400
meters"

17.12.91

"Ways of Thinking-SEP-VI"
Making space"
"Instrumental Techniques"
"Ecography"

18.12.91

"C.B.R. Test"
"Muddle Fuddle"
"Of Course I have Problems"

19.12.91

"Basics of Reinforced concrete"
"Visual Anthropology and
Approach"
"Keki Daruwala and his poetry"

20.12.91

"Locus of a Point"
"Hauz Khas – Transformation
of An Urban Village"
"The Sun's Hidden Treasure"

21.12.91

"Rabindra Sangeet – IV"

"European Modal Music"

"Weekly Programme"

2nd Transmission

4.00 p.m. to 5.00 p.m.

16.12.91

"Remote Sensing-XII: Orbits
for Earth Observations-I"
"Authority"
"The Image Evaluation and Syn-
thesis Centre: The CDSI"

17.12.91

"Carbon – The key to organic
Chemistry"
"Radioactivity-II: Types of
Radiations"
"Visual Pathways-II"

18.12.91

"Village and Small Industries"
"Questioning Rock Art"
"About Bats"

19.12.91

"Watch Out what you eat"
"Shakespeare – As we like him"

20.12.91

"Vedic Mathematics-II: Urdhva
Tiryagbhyam"
"Facing the Future-II: Issues"
"Noise Pollution"

21.12.91

"The Pot Makes Itself-II"
"Handicrafts of Andhra
Pradesh – Etikoppaka Toys"
"Dance Depicts Life"

Interactive Teaching Through Satellite TV

The UGC has introduced live in-
teraction between students and

teachers in educational broadcast-
ing programmes in India. The "Na-
tional Talkback Experiment"
conducted recently in New Delhi
made it possible by providing a live
question and answer session be-
tween viewers and experts in UGC's
"countrywide classroom".

In the experiment, the telecast of
an educational programme was fol-
lowed by a discussion between ex-
perts and students at selected
locations who asked questions
telephonically or via a special satel-
lite terminal.

The questions and the response
of the experts (located in Delhi) was
then relayed back to be seen and
heard by all viewers, including those
sitting at home making the entire
country a larger than life classroom.

Two centres, namely, Imphal and
Jodhpur, were linked to Delhi via
special satellite while centres at Ah-
medabad, Calcutta, Hyderabad,
Madurai, Patiala and Roorkee used
telephones during the "one way
video and two-way audio tele-con-
ference".

The experiment was jointly con-
ducted on behalf of UGC by the
recently created Inter-University
Consortium for Educational Com-
munication (IUCEC), Space Ap-
plication Centre (SAC) and
Development and Educational
Communication Unit (DECU) of
the Indian Space Research Or-
ganisation (ISRO) with subject ex-
perts available at the studio of Delhi
Earth Station (DES), while Door-
darshan and the Department of
Telecommunications, Mahanagar
Telephone Nigam Ltd. (MTNL) ac-
tively collaborated.

The UGC, which has been
broadcasting programmes to enrich
education at the undergraduate
level since 1984, would further im-
prove and enhance the learning
process by creating an active inter-
active situation, say experts.

According to Dr Kiran Karnic, Director IUCEC, "the talkback experiment successfully simulates the classroom atmosphere with active and lively interaction between students and teachers".

The programme on economic development in India, prompted sharp and incisive questions from the students, said Dr Kaushik Basu of the Delhi School of Economics.

Thousands of scientists and technicians working on the programme travelled from universities, colleges, research institutes and enterprises across the country to help rural townships develop new and existing industries, with the introduction of new farming techniques receiving a high priority.

At the last reckoning, 14,600 out of 27,900 Spark Plan projects had been successfully completed.

News from Abroad

China to Double Research Funding

China has announced that research funding will nearly double to 1.35 percent of its gross national product by the year 2000. At present the percentage is 0.7 — significantly lower than the 2 to 3 percent spent by most industrialised nations.

The announcement was made by Song Jian, the minister in charge of the the State Science and Technology Commission, after the Chinese government's decision to boost its scientific potential with a series of important basic research projects designed to raise standards of research and efficiency.

The minister stressed that the development of science and technology should be put high on the agenda of party and government organs at all levels, and that the scientific consciousness of Chinese people be raised still further.

The government is anxious to prevent a further decline in numbers of scientists and technicians, and is determined that all governmental and private enterprises should motivate personnel by significantly improving their working conditions and welfare.

A recent board meeting of the China International Association for Science and Technology is also reported to have proposed to intensify its efforts to introduce more

scientific and technology achievements, particularly in high-tech fields, on to the international market.

The association has, in its three year life, backed several deals to promote Chinese technology overseas and has hosted a number of international scientific exhibitions.

Maintaining its very high profile of recent months, the State Science and Technology Commission is claiming that its Spark Plan programme, designed to promote the introduction of science into rural areas, has been a huge success since its launch five years ago. Initiated by the commission in 1986, the Spark Plan aims to popularise and develop science and technology projects, train managers and technological personnel, and help improve production and efficiency levels in rural areas.

ACE Annual Meeting

The 74th Annual Meeting of the American Council on Education (ACE) will be held at Sheraton Washington Hotel, Washington, DC, on January 22-25, 1992.

The theme "Old Borders, New Frontiers: Higher Education in Changing World," presents a focus on international issues. Approximately 100 international heads of universities from all parts of the globe : Asia, Latin America, Western, Central, and Eastern Europe, and North America are expected to attend this meeting. The conference will provide an opportunity for dialogue, exchange, and cooperation among peoples and nations which have been considered essential to solve the problems confronting our rapidly changing world.

Improving Teaching in Higher Education

(Contd. from page 1)

This association will work on the pattern of the Royal Society of England or the Indian Medical Association or the Institution of Engineers. The formation of such an association will lend dignity and prestige to the teaching profession

and will be a step in the right direction so far as higher education in our country is concerned. Obviously the initiative for the formation of such an association should come from the teaching fraternity itself.

Nagpur Varsity Hosts West Zone Youth Festival

A five-day West Zone Youth Festival was recently organised at the Nagpur University. 500 participants from fourteen universities participated in the cultural items of music, dance, theatre, literary activities and fine arts. The Festival was inaugurated by Mr. Datta Meghe, M.P. while Dr. P.L. Bhandarkar, Vice-Chancellor presided.

In his inaugural address, Mr. Datta Meghe recalled the contributions of late Mr. Rajiv Gandhi towards the development and welfare of the youth. He explained that the youth have a vital role to play in ensuring progress and prosperity of the nation.

Mr. Meghe also highlighted the tremendous contribution of the city of Nagpur towards cultural activities, particularly the Marathi stage. He said, at one time the Marathi theatre in Nagpur was comparable to the best in the country. "May be it is an overdose of TV, or some other factor, but the attraction of theatre seems to be dwindling now. I call upon the youngsters here to revitalise this wonderful and traditional form of entertainment", Mr. Meghe said.

Mr. Sampson David, Senior Cultural Officer, Association of Indian Universities, in his address highlighted the vital role the Association had played in the revival of the Inter-University youth festivals.

The inaugural function was followed by a colourful display of folk dances presented by Nagpur University students from Africa and Palestine. Renowned poets of the region Mr. Thamdeo Kolte, Mr. Radheshyam Maheshwari and Mr. Krishan Kumar Choube regaled the

audience in a "Hasya Kavi Sammelan".

The opening day of the cultural items contests featured competitions in classical dance, group and solo western songs, skits and mimes, painting and collage, poster making and quiz.

Goa University emerged the winners of the Inter University Quiz competition by bagging 44 points while Amravati University, which bagged 39 points, stood second. Bombay University came in third with 36 points.

The classical dance began with a Kathak performance by Amravati University followed by half-a-dozen more dances in the same style.

Vaibhav of Bombay, Piyali Nandi of Indira Kala and Sachee Kehri of Rani Durgavati enthralled the audience by their graceful, striking postures and impressive footwork. In the western group singing competition, the universities of Marathwada, Bombay, Jabalpur, Goa and Nagpur participated. The event started with the Marathwada team presenting the Boney-Msmash hit "Rivers of Babylon", and "Brown girl in the ring". The Bombay group rendered some message oriented songs. They started with "Carvan of love".... and then sang "Bow down Mister..." This was followed by a repeat performance of "Brown girl in the ring..." by Rani Durgawati. "She drives me crazy..." was the song rendered by Goa followed by the next number "Venus" which virtually sounded like a solo. The home team presented a lively number "Hurray, Hurray" which drew generous applause.

The Western (Solo) competition

began with the Stevie Wonder smash-hit, "Part-time Lover", rendered by Bernard Anthony of the Marathwada University. The second number was "Son of India", a pop song composed and sung by Bombay University's Lalit Lobo. Ayesha Noronha of S.N.D.T. Women's University, presented Whitney Houston's "Greatest Love of All". Gauri Khardenavis of Nagpur University sang another hit by Houston, "Nothing's Gonna Change My Love for You". Then came puny Gayatri Krishnamurthy of Rani Durgavati humming "Happiness". The Goans, led by Anthony Albuquerque sang Don Henley's "Hotel California". Anita Ketkar of Devi Ahilya gave a rendition of the zippy song "Frankie".

The participants in the Mime Session focussed mainly on National Integration, Corruption etc. 'Sati Dahan', presented by SNTD Women's University, evoked a feeling of revulsion amongst the spectators at the practice prevailing in our society, which has taken the form of a curse.

Then followed 'on the spot painting' competition. The themes for the competition were natural calamity, environment, railway platform etc. The participants concentrated on these topics and converted their thoughts into colourful frames.

In the One Act plays the students portrayed various debatable issues and problems before the society, through expressive and eloquent performances. The basic issues covered on the stage were reservation and unemployment crises, bribery, nepotism, election clashes, communal disharmony, poverty etc.

Notable performances were given by students from Bombay, Bhavnagar, Akola, Amravati, Vikram, Jabalpur and Banasthali Universities.

The symbolic play 'Abhishapt' put up by Banasthali University students evoked maximum audience applause.

Classical Non-Percussion Instrumental Music witnessed eight participants from an equal number of universities. In this event Raga Kirwani on sarod by Sajal Kumar Soni, Raga Madhukauns by Seems Mistry of SNDT Women's University on the harmonium and Raga Madhuvanti on Jaltarang presented by Milind Tulankar of Amravati were well received.

The posters displayed at the Poster Making Contest portrayed the sense of alarm that the youngsters felt over water scarcity and pollution.

The Light Vocal (Solo) competition began with 'Natya Sangeet' by the Marathwada University. The participants from Punjabrao Krishi Vidyapith and Amravati University, too gave 'Natya Sangeet' renditions. Participants from Shivaji and Bombay sang 'Bhajans' while those from Rani Durgavati sang a 'Bhavgeet'. Nagpur University's Seems Ghare sang the ghazal 'Salona sa Sajan Hai' amid hearty cheering.

Outstanding performers included Prasad Khaparde from

Amravati and Sarthak Dasgupta from Bombay (Bhajan in Raag Bhairavi).

Cartooning is a serious business, say top cartoonists. And so it was at the Cartooning Contest. The themes for cartooning were 'Circus' and 'Humourous moment in the playground'. Impressive cartoons were drawn by Kunwar Ajay Singh Chauhan of Devi Ahilya Vishwavidyalaya, Indore, Swapneel Kadam, Bombay University and Anurag Rai of Indira Kala Sangit Vishwavidyalaya, Khairagarh. Other participants included Atul Pannase, Nagpur; Naveen Masih, Rani Durgavati Vishwavidyalaya, Jabalpur; K. T. Tate, Marathwada University, Aurangabad; Pradeep Chauhan, Bhavanagar and John Pinheiro of Goa.

"Aao mil kar rahen, Hind ke wasiyo", by Marathwada University, "Jai Swatantra te" and "Johar mai bap, Johar..." by Bombay University, were the highlights of the Hindi Group singing competition.

The folk dance competition was marked by the Rhythmic beating of drums, synchronised steps and fluid movements of the dancers. There was a string of Adivasi dances, ranging from those of advasis inhabiting

jungles, with leaves wrapped around the heads of Gonds and to those of the Dhangars (the shepherds). Dances by Rani Durgavati Vishwavidyalaya, Jabalpur; Devi Ahilya Vishwavidyalaya, Indore and Shivaji University, Kolhapur drew good applause. Most remarkable however was the Jodhapuri Nritya in which the dancers were sending messages to their 'pihar'. The shepherd dance performed by the SNDT Women's University and the Ras Garba by the Bhavnagar University students were very much appreciated.

Nine universities participated in the classical vocal music recital competition. Vaishali Ogade of Devi Ahilya gave a recital in Raag Bageshri, Saarthak Dasgupta of Bombay in Raag Hansadhwani and Kalyani Pande of SNDT Women's University, in raag Sarang.

During the Valedictory session, the selected cultural items were presented by the participating universities. Dr. P.L. Bhandarkar, Vice-Chancellor of the host university gave away the Championship Trophies. The Overall Championship and the Runners Up trophies were bagged by Bombay and Amravati Universities respectively.

West Zone Inter-University Youth Festival RESULTS

A. MUSIC

1. Classical Vocal(Solo)
2. Classical Instrumental (Solo) Percussion
3. Classical Instrumental (Solo) Non-percussion
4. Light Vocal (Indian)
5. Western Vocal (Solo)
6. Group Song (Indian)
7. Group Song(Western)

1. Bombay University
2. SNDT University
1. Amravati University
2. Indore University
1. Khairagad University
2. Bombay University
1. SNDT University
2. Amravati University
1. Bombay University
2. Indore University
1. Bombay University
2. Banasthali University
1. Bombay University
2. Nagpur University

*Overall best Trophy in Music to Bombay

**Runners up Trophy to Amravati and SNDT (Jointly)

B. DANCE

1. Folk Dance
2. Classical Dance
1. Rani Durgavati, Jabalpur
2. Indirakala Sangeet, Khairagad
1. Bombay University
2. Indirakala Sangeet, Khairagad

*Overall Best Trophy to I.K.S., Khairagad

**Runners up Trophy to Rani Durgavati, Jabalpur

C. QUIZ

1. Goa University
2. Amravati University

*Overall Best Trophy to Goa University
 **Runners up Trophy to Amravati University
DEBATE (Non Competitive)

- | | |
|---------------------------------|------------------------------------|
| 1. Vinay K. Srivastav | Vikram University,
Ujjain |
| 2. Manish Vyas | - do - |
| 3. Ku. Sridevi Chavji | Nagpur University,
Nagpur |
| 4. Ku. Gayatri
Krishnamurthy | Rani Durgavati,
Jabalpur |
| 5. Dharam Shukla | Bhavnagar University,
Bhavnagar |

D. THEATRE

- | | |
|-----------------|---|
| a. One Act Play | 1. Bombay University
2. Amravati University |
| b. Skits | 1. Amravati University
2. Bombay University |
| c. Mime | 1. Bhavnagar
University
2. S.N.D.T., Bombay |

*Overall Best Trophy to Bombay University
 **Runners up Trophy to Amravati University

E. FINE ARTS

- a) One the Spot Painting
 1. Marathwada University – Shri K.T. Tate

2. Nagpur University – Mr. Sanjay Agashe

b) Collage

1. Vikram University – Ku. Madhuri Bhosale
2. Indira Kala Sangeet – Shri Prabhash Baghel

c) Poster Making

1. Nagpur University – Shri Atul Panase
2. Indira Kala Sangeet – Shri Padmakar Bobde

d) Clay Modelling

1. Bombay University – Shri Swapnil Kadam
2. Indira Kala Sangeet – Shri Krantilal Sahu

e) Cartooning

1. Indira Kala Sangeet – Shri Anurag Rai
2. Bombay University – Shri Swanpnil Kadam

f) Rangoli

1. Bhavnagar University – Shri Pradeep Chavan
2. Shivaji University – Manekari Nagendra

*Overall Best Trophy to Indira Kala Sangeet, Khairagad

**Runners up Trophy to Nagpur University.

GENERAL CHAMPIONSHIP

Ist – Bombay University

GENERAL CHAMPIONSHIP Runners up Trophy

2nd – Amravati University

SCHOOL OF PLANNING AND ARCHITECTURE: NEW DELHI

(Deemed to be a University under Section 3 of UGC Act 1956)



4, Block-B, Indraprastha Estate, New Delhi- 110 002

APPOINTMENTS TO FACULTY POSITIONS

Applications are invited from the Indian Nationals for the following posts.

Special Recruitment Drive For SC/ST Candidates (Backlog vacancies of the year 1989 and 1990).

LECTURERS in Architecture, Urban Design, Transport Planning, Landscape Architecture, Housing Conservation, Physical Planning and Environmental Planning, in the pay-scale of Rs.2200-4000.

GENERAL POSTS

PROFESSORS (Rs.4500-7300) in Building Engineering and Management and in Landscape Architecture.

ASSISTANT PROFESSOR (Rs.3700-5700) in Building Engineering and Management, and in Land/Planning Economics

Candidates from outside Delhi called for interview will be paid second class rail fare for both journeys (within India), by the shortest route.

Prescribed application forms and other details regarding qualifications and experience etc. can be obtained free of cost from the Office of the Registrar, either personally or on written request accompanied by a self addressed envelope of size 25 cm x 12 cm indicating the name of Post(s) which the applicant desired to apply for.

LAST DATE : Applications to reach the Registrar on or before **15th January, 1992.**

Motivating Students to Attend Classes

The problem of students not attending classes regularly is not a problem of a single university and almost all universities are suffering from this malady. These days we find that not many students come to attend their classes. For example, if 60 to 70 students are enrolled in a particular section, we notice that hardly 15 to 20 students come regularly to study. I am tempted to share my thoughts on this complicated problem because it has been debated several times by the teachers in the meetings and otherwise. Although it is very difficult to discuss the whole gamut of this complex and intricate problem in an article in a journal, yet a few aspects have been touched so that ideas are generated which can lead to fruitful results.

Students' Views

The students are generally seen saying that they come to the university or college to attend classes but teachers do not take classes. They hold the view that they come from distant places and when only one or two periods are held out of six to eight periods scheduled on a particular day, they get disappointed. If the two periods are vacant consecutively, they do not wish to wait and attend the next period as it amounts to great loss of time for them. They argue that if by spending six to eight hours they get little, then what is the use of coming to the university. They can get the same thing in lesser time if they go in for tuitioning or attend private coaching institutions/centres where total syllabus is covered in a time-bound framework. In this manner, they will earn a university degree without

going to the university.

Teachers' Views

The teachers hold students responsible for not coming to the classes. They are of the opinion that it is natural that some periods fall vacant as teachers remain on leave. After all university grants them leave and they are within their rights to avail of it. They have also to participate in conferences/seminars, orientation and refresher courses etc. Some of them are members of several bodies in the university and they have to attend their meetings etc. On account of this, one or two periods are bound to remain vacant.

Apart from this problem when classes are not held even during the regular working day of the university, the classes do not meet because the university remains closed due to many internal and external factors like elections, strikes, riots in the city, agitations etc. The university does not exist and operate in vacuum and being a dynamic organisation, it continuously interacts with environment and is affected by it.

The Solution

We cannot say that both the parties are wrong. They are correct in their own perspectives. But the real and important question is how to make the system work. If timely and effective steps are not taken, the system will collapse in a few years and we shall be compelled to think on hard options like handing over all undergraduate courses, particularly of social sciences including commerce, to the open universities and limiting the jurisdiction of the universities to postgraduate and research studies only.

A measure often suggested to improve students' attendance in the classes is to strictly apply the attendance norms and those who do not attain a certain percentage of the total attendance (66 per cent to 75 per cent) should be debarred from appearing in the exams or should be treated as private candidates. Many believe that it will have salutary effect. But this measure is fraught with problems. Forcing students to attend classes through administrative measures will not help. This will involve issuing warnings to the students from time to time and informing them and their parents about the attendance progress. This again is a big task and it is doubtful if the university or college can handle it effectively. Besides, if a high percentage of total students are declared as private candidates, it will adversely affect the workload of teachers next year as only a few out of them will be promoted to the higher class.

A useful suggestion in this respect is to create a university climate which is conducive to studying. The university should look like a 'temple of learning' and a place for overall personality development for students. Prompt and effective library services, efficient sports and canteen facilities must be provided. Co-curricular and extra-curricular activities must be regularly organised to attract and hold the students and to provide them opportunities to develop their faculties. But unfortunately, these activities find little place today and these are being neglected day after day thus putting the total system into chaos. There is an urgent need to reverse this trend.

Sunil Handa
Assistant Professor,
Deptt. of Business Administration,
University of Rajasthan,
Jaipur (Rajasthan)

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on higher education. Among the topics prominently represented are educational sociology, educational planning, educational administration, teaching & teachers' training, examinations, economics of education and country studies. Developing fields of adult education, continuing education and distance education, and educational technology are also well stocked.

The library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of higher education. Files of annual reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to the AIU Library'.

The library receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly our column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The library is steadily building up a collection of audio and video cassettes on matters educational and maintains a well appointed Audio-Visual Room equipped with a double deck audio cassette recorder, a VCR and a colour TV monitor, and an overhead projector.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees in Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Lawrence, P Sam. **Studies on boundary layer flows.** Kerala. Dr B Nageswara Rao, Scientist-Engineer, Vikram Sarabhai Space Centre, Thiruvananthapuram.

Physics

1. Anand, Vandana. **Experimental high energy physics: Interactions of 800 gev protons with connection.** Delhi.

2. Ashwani Kumar. **Theoretical study of transport properties of high temperature superconductors.** HP. Dr K C Sharma, Department of Physics, Himachal Pradesh University, Shimla.

3. Attri, Kartar Singh. **Theoretical study of thermodynamic and transport properties of liquid metal alloys.** HP. Dr P K Ahluwalia, Department of Physics, Himachal Pradesh University, Shimla.

4. Bhattacharjee, Aranya Bhuti. **Computer aided biophysical studies on chaotic cerebro cortical and neuromuscular systems.** Delhi. Dr M M Bajaj, Department of Physics and Astrophysics, University of Delhi, Delhi.

5. Bindra, Harpreet. **Physics and astrophysics of quark-gluon plasma.** Delhi. Dr Ashok K Goyal, Department of Physics, Hans Raj College, Delhi.

6. Chandrayan, Sharat Sudhakar. **Ferroelectrics.** Delhi. Prof

Abhai Mansingh, Department of Physics and Astrophysics, University of Delhi, Delhi.

7. Das, Aranyak. **Ionospheric data processing by use of phase lock eutectics technique and study of solar state effects on the cone phase.** Delhi. Dr Narinder Nath, Department of Physics and Astrophysics, University of Delhi, Delhi.

8. Dasgupta, Shinjini. **Nuclear potential with quark degrees of freedom.** Delhi. Prof V S Bhasin, Department of Physics and Astrophysics, University of Delhi, Delhi.

9. Devender Kumar. **Electronic properties and structure of amorphous semiconductors in the system Pb Se-GeSe-GeSe₂.** HP. Dr S C Katyal, Department of Physics, Himachal Pradesh University, Shimla.

10. Dheer, Manisha. **Preparation and Josephson effect studies of thin films of ceramic superconductors.** Delhi. Dr S K Trikha, Department of Physics and Astrophysics, University of Delhi, Delhi and Dr V S Tomar, National Physical Laboratory, Delhi.

11. Dutta, Sukanta. **Properties of high density matter in hadronic and quark gluon plasma in phase.** Delhi. Prof S Rai Choudhury, Department of Physics and Astrophysics, University of Delhi, Delhi.

12. Ghosh, Janaki. **Studies on dense plasma focus.** Delhi. Prof M P Srivastava, Department of Physics and Astrophysics, University of Delhi, Delhi.

13. Girish Shanker. Nuclear spectroscopic measurements of high spin states. Delhi. Prof S L Gupta, Department of Physics and Astrophysics, University of Delhi, Delhi.

14. Guleria, Ravinder. Study of thermodynamic and electronic properties of chemisorbed layers using model Hamiltonian schemes. HP. Dr P K Ahluwalia, Department of Physics, Himachal Pradesh University, Shimla.

15. Gupta, Sanjay. Study of fast neutron spectra in thorium Solanketa. Delhi. Prof Feroz Ahmad, Department of Physics and Astrophysics, University of Delhi, Delhi.

16. Jain, Kiran. Studies on high temperature superconductors. Delhi. Prof P N Dheer, Department of Physics and Astrophysics, University of Delhi, Delhi and Dr B K Das, National Physical Laboratory, Delhi.

17. Jawahari Ram. Study of collective nuclear properties in some medium mass nuclei using interacting Boson model. HP. Dr S P Sud, Department of Physics, Himachal Pradesh University, Shimla.

18. Jitender Singh. Investigations of electrical, magnetic, microstructural properties and Mossbauer studies of substituted Ni-Sn and other ferrites. HP. Dr S P Sud, Department of Physics, Himachal Pradesh University, Shimla.

19. Lamba, Sushil. Classical solutions in non-linear field theories. Delhi. Prof J D Anand, Department of Physics and Astrophysics, University of Delhi, Delhi.

20. Mohandas, G. Studies on interplanetary and interstellar media. Kerala. Dr M N Sreedharan Nair, Prof, Department of Physics, M G College, Thiruvananthapuram.

21. Pragma. Physics of quark gluon plasma/hadronic matter at high densities and temperatures. Delhi. Dr J D Anand, Department of Physics and Astrophysics, University of Delhi, Delhi.

22. Ram Chand. Study of structural and electronic properties of Ce-Sn-Se glassy semi conductors. HP. Dr S C Katyal, Department of Physics, Himachal Pradesh University, Shimla.

23. Rishi, Poonam. Electronic and atomic correlation functions. Delhi. Dr S P Tewari, Department of Physics and Astrophysics, University of Delhi, Delhi.

24. Satish Kumar. Electronic properties of glassy (Se 0.7 Te 0.3)100-x Yx (0 < x < 10) (Y-Zn, Cd, Bi, Pb) systems. HP. Dr D R Sharma, Department of Physics, Himachal Pradesh University, Shimla.

25. Sharma, Anju. Hadron structure via quark dynamics within relativistic field theory. Delhi. Prof A N Mitra, Department of Physics and Astrophysics, University of Delhi, Delhi and Prof S R Choudhury, Department of Physics and Astrophysics, University of Delhi, Delhi.

26. Sharma, Ashok. Molecular association in the binary mixtures DMSO as one of the constituents from microwave absorption data. HP. Dr D R Sharma, Department of Physics, Himachal Pradesh University, Shimla.

27. Sharma, Sohan Lal. DC conduction in Ge(1-x)Se2 Mx (M-Sb, Bi, Pb and Cd) glasses. HP. Dr D R Sharma, Department of Physics, Himachal Pradesh University, Shimla.

28. Sinha, Pranoy Kumar. Weak interactions and applications in astrophysics. Delhi. Prof S Rai Choudhury, Department of Physics and Astrophysics, University of Delhi, Delhi and Dr Ashok K Goyal, Department of Physics, Hansraj College, Delhi.

29. Sudha, C G. Studies relating energetic solar phenomena. Kerala. Dr M N Sreedharan Nair, Prof, Department of Physics, M G College, Thiruvananthapuram.

30. Zutshi, Vishva Vikhyat. Experimental high energy physics:

High energy hadron nucleus interactions. Delhi. Dr R K Shivpuri, Department of Physics and Astrophysics, University of Delhi, Delhi.

Chemistry

1. Augustine, Lily. Halide and metal ion catalysed and uncatalysed redox reactions: A kinetic and mechanistic study. Kerala. Dr T S Anirudhan, Lecturer, Department of Chemistry, University of Kerala, Thiruvananthapuram.

2. Bansal, Vandana. Photochemistry of quinones and phenols. Delhi. Prof R N Khanna, Department of Chemistry, University of Delhi, Delhi.

3. Brinda, S. Phytochemical investigation and biological screening of some lesser known wild medicinal plants. Kerala. Dr P K Rajan, Lecturer, Department of Chemistry, University of Kerala, Thiruvananthapuram.

4. Diwakar, Rekha. Photochemistry of quinones and phenols. Delhi. Prof R N Khanna, Department of Chemistry, University of Delhi, Delhi.

5. Johri, Shalini. Polymer chemistry. Delhi. Prof S K Chatterjee, Department of Chemistry, University of Delhi, Delhi.

6. Khare, Mahendra Kumar. Studies on the glycosidic principles of *Majorana hortensis* Moench. HS Gour. Dr R N Yadav, Lecturer, Department of Chemistry, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

7. Mathew, Jessymol. Novel photochemical and oxidation reactions in organic synthesis. Kerala. Dr G V Nair, Deputy Director, Regional Research Laboratory, Thiruvananthapuram.

8. Mohakud, Pradeep Kumar. Synthetic approaches to some selected natural products. Delhi. Prof M R Parthasarathy, Department of Chemistry, University of Delhi, Delhi.

9. Murukan Asari, N. Oxovanadium (IV) and dioxouranium (VI) complexes of some benzimidazole and pyrazo-5-one derivatives. Kerala.

10. Pillai, R Sreedevi. Synthesis of some thiazoles. Kerala. Dr A Sulekha, Prof, Department of Chemistry, S N College, Kollam and Dr K N Rajasekharan, Department of Chemistry, University of Kerala, Thiruvananthapuram.

11. Rajalekshmi, S. Synthesis and characterisation of some liquid crystalline polymers containing both flexible and kink structure in the main chain. Kerala. Dr C P Prabhakaran, Prof and Head, Department of Chemistry, University of Kerala, Thiruvananthapuram.

12. Ravindran, Reena. Metal complexes of some tridentate ONS donors. Dr C P Prabhakaran, Prof and Head, Department of Chemistry, University of Kerala, Thiruvananthapuram.

13. Sareen, Ruchi. Metal ion interaction with DNA and clinical role of metals in adult rats hyperbilirubinemia. Delhi. Dr Ramesh Chandra, Department of Chemistry, University of Delhi, Delhi.

14. Sasikumar, T K. Cycloadditions of O-Quinones and related systems. Kerala. Dr G V Nair, Deputy Director, Regional Research Laboratory, Thiruvananthapuram.

15. Seth, Neelam. Photochemistry of quinonoids. Delhi. Prof R N Khanna, Department of Chemistry, University of Delhi, Delhi.

16. Shakil, Najma Akhtar. Enzyme-assisted organic syntheses. Delhi. Prof T R Rajagopalan, Department of Chemistry, University of Delhi, Delhi.

17. Sharma, Krishan Kumar. Persistence and retabillism of synthetic pyrethroids on cotton crop. Delhi. Prof S S Chibber, Department of Chemistry, University of Delhi, Delhi.

18. Sreekumaran Nair, J. Studies in bioconjugate chemistry. Kerala. Dr K N Rajasekharan, Department of Chemistry, University

of Kerala, Thiruvananthapuram.

19. Yashbir Singh. **Chemistry of natural products.** Delhi. Prof D K Bhardwaj, Department of Chemistry, University of Delhi, Delhi.

Earth Sciences

1. Choubey, Jitendra. **Petrography and geochemistry of organites around Baldevgarh in Tikamgarh district of Madhya Pradesh.** HS Gour. Dr R K Trivedi.

2. Sharma, Arvind Kumar. **Geological and environmental studies in Tawa Dam Reservoir, District Hoshangabad, MP.** HS Gour. Dr Arun K Shandilya.

3. Singh, Abhay Jeet. **Rainfall in relation to general circulation.** BHU. Dr S N Pandey, Department of Geophysics, Banaras Hindu University, Varanasi.

Engineering & Technology

1. Babu, Patibandla Sivasai. **Industrial engineering and management.** BHU. Dr A K Agrawal, Department of Mechanical Engineering, Banaras Hindu University, Varanasi and Dr S K Sharma, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

2. Verma, Pramod Kumar. **Cloning and expression of endoglucanase gene of *Bacillus subtilis* in yeast, *Saccharomyces cerevisiae*.** BHU. Dr (Mrs) Ranjana Srivastava, Division of Microbial Genetics, Central Drug Research Institute, Lucknow and Dr S Kundu, School of Biochemical Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Botany

1. Binu, S. **Ethnobotany of Pathanamthitta District, Kerala State.** Kerala. Dr T S Nayar, Tropical Botanic Garden and Research Institute, Palode.

2. Licy, J. **Variability, correlations and heterosis for yield and yield components in certain hybrid clones of *Hevia brasiliensis*.** Kerala. Dr A O N Panicker, Rubber Research Institute of India, Kottayam.

3. Rajakumar, C P. **Studies on the Echinoderm fauna of the Muttom Coast, South West Coast of India.** Kerala. Dr S Sankaranarayana Iyer, Department of Zoology, University of Kerala, Thiruvananthapuram.

4. Sudha, C G. **Tissue/cell culture study of some rare plants having medicinal importance.** Kerala. Dr P Pushpangadan, Tropical Botanic Garden and Research Institute, Palode and Dr P N Krishnan, Tropical Botanic Garden and Research Institute, Palode.

5. Tyagi, Bipul. **Heavy metal toxicity in cyanobacteria.** BHU. Dr L C Rai, Reader, Department of Botany, Banaras Hindu University, Varanasi.

6. Ushadevi, K. **Studies on the Zygnemataceae (Chlorophyta) of Kerala.** Kerala. Dr M V Nadaraja Panicker, Department of Botany, S N College, Kollam.

Zoology

1. Anantharaman, P A. **Studies on the biology of silk worm moth, *Bombyx mori* L from Kerala.** Kerala. Dr K Krishna Pillay.

2. Archana Kumari. **Insect biochemistry and physiology.** Delhi. Dr M C Agarwal, Department of Zoology, University of Delhi, Delhi.

3. Arora, Satya. **Cortical morphogenesis in ciliates (protozoa).** Delhi. Dr G R Sapra, Department of Zoology, University of Delhi, Delhi.

4. Beena Beegam, T. **Ethological and ethophysiological studies**

on the role of biogenic amines on the reproduction of tropical vertebrates. Kerala. Dr Mathew M Oommen, Department of Zoology, University of Kerala, Kariavattom.

5. Bhattacharya, Ajanta. **Prolaction and implications in female reproduction.** Delhi. Prof R N Saxena, Department of Zoology, University of Delhi, Delhi and Dr J K Datta.

6. Bir, Nivedita. **Biochemical and immunological studies of the antigens of *Aspergillus fumigatus*.** Delhi. Dr K Muralidhar, Department of Zoology, University of Delhi, Delhi and Dr P Usha Sharma, Central Scientific and Industrial Research, New Delhi.

7. Dutta, Jayanti. **Karyotypic studies on some species of Aphids (Homoptera: Aphididae) from Himachal Pradesh.** HP. Dr D C Gautam, Department of Bio-sciences, Himachal Pradesh University, Shimla.

8. Gupta, Rajiv. **Feeding ecology of zooplankton and fish.** Delhi. Dr T R Rao, Department of Zoology, University of Delhi, Delhi.

9. Hakkim, H Abdul. **A study on certain aspects of social and reproductive behaviour of the wild boar, *Sus scrofa*.** Kerala. Dr M Balakrishnan, Department of Zoology, University of Kerala, Kariavattom.

10. Jacob, N K. **Studies on certain aspects of development and differentiation in ciliate protozoan.** Delhi. Dr C R Sapra, Department of Zoology, University of Delhi, Delhi.

11. Jha, Ranutosh Kumar. **Reproductive physiology and neuroendocrinology.** Delhi. Dr R N Saxena, Department of Zoology, University of Delhi, Delhi.

12. Kamallesh Kumari. **Neuroendocrine control of avian reproduction.** Delhi. Prof R N Saxena, Department of Zoology, University of Delhi, Delhi.

13. Mathews, Reema Achiamma. **Nutritional and environmental factors modulating insect oosorption.** Kerala. Dr D Muraleedharan, Reader, Department of Zoology, University of Kerala, Kariavattom.

14. Moorthy, P Anitha. **Pest status and feeding behaviour of the wild boar, *Sus scrofa*.** Kerala. Dr M Balakrishnan, Department of Zoology, University of Kerala, Kariavattom.

15. Roy, Suparna. **Insect biochemistry.** Delhi. Prof H C Agarwal, Department of Zoology, University of Delhi, Delhi.

16. Shivendra Singh. **Pest management in pesticides of plant origin.** Delhi. Dr S S Sehgal, Department of Zoology, University of Delhi, Delhi.

17. Syamakumari, V S. **A study on certain aspects of behaviour of *Bandicoota bengalensis* with reference to its specialized integumentary glands.** Kerala. Dr M Balakrishnan, Department of Zoology, University of Kerala, Kariavattom.

Medical Sciences

1. Bhatnagar, Seema. **Development, characterisation and evaluation of pressure sensitive atactic polymer based hypodermal contraceptive system.** HS Gour. Dr S P Vyas, Lecturer, Department of Pharmaceutical Sciences, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

2. Vishwakarma, Kaushal Kishore. **Designing of some drugs through conjunction method and their evaluation.** HS Gour. Dr D V Kohli, Lecturer, Department of Pharmaceutical Sciences, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bisht, C.S. **Extreme forms and some other results in number theory.** Kumaun. Dr J M C Joshi, Department of Mathematics, Kumaun University, Nainital.
2. Ikram-ul-Hq. **Study of certain special functions and integral transforms and their extension in generalized functions spaces.** Kumaun. Dr J M C Joshi, Department of Mathematics, Kumaun University, Nainital.
3. Pant, R.P. **Some fixed point theorems in metric and Banach spaces.** Kumaun. Dr J M C Joshi, Department of Mathematics, Kumaun University, Nainital.
4. Saha, Nripendra Kumar. **I-semigroups.** Calcutta.
5. Sharda Devi. **Stability analysis of some fluid dynamical systems.** HP.
6. Sharma, Yogeshver Dutt. **Displacement of fluids and instabilities in permeable media.** HP.
7. Singh, M.P. **On Frechet spaces of distribution and multiplier operators.** Roorkee.
8. Swaminathan, M. **Bases, approximation and coapproximation in Banach spaces.** Madras.
9. Veena Kumari. **Newtonian and viscoelastic fluid instabilities.** HP.

Statistics

1. Lakshmy, B. **Semi-Markov analysis of some inventory and queueing problems.** CUST. Dr A Krishnamoorthy, Prof, Department of Mathematics and Statistics, Cochin University of Science and Technology, Kochi.
2. Pandey, Himanshu. **Some contribution to population growth and migration models.** Gorakhpur. Dr V P Ojha.

Astronomy

1. Anupama, G.C. **Studies of classical and recurrent novae.** Bangalore. Dr B C Chandrasekhara, Department of Physics, Bangalore University, Bangalore and Dr T P Prabhu, Indian Institute of Astrophysics, Bangalore.

Physics

1. Ajith Kumar, P.T. **Holographic methods in the studies of thin film stress, vibration analysis and pattern recognition.** CUST. Dr C Purushothaman, Formerly Prof, Department of Physics, Cochin University of Science and Technology, Kochi.
2. Ananth, M.V. **Studies on electrochemical and physical properties of electrodeposited nickel and manganese based co-deposits.** Madras.
3. Dhar, Sandhya Sankhya. **Kr 84 interactions in nuclear emulsions at 1.4 A GeV.** Jammu. Late Prof Y Prakash and Dr L K Mangotra, Prof, Department of Physics, University of Jammu, Jammu.
4. Gupta, Suman. **Application of the methods of information theory to problems in optics.** Punjabi. Dr S P S Virji, Prof, Department of Physics, Punjabi University, Patiala.

5. Hastak, Neeta Ramchandra. **An X-ray absorption spectroscopic study of the local environment of Europium in some of its systems.** Nagpur. Dr P C Deshmukh, Department of Physics, Nagpur University, Nagpur.

6. Jagdish Kumar. **Positron annihilation studies in alkyl cyanobiphenyls.** Delhi.

7. Jaswal, Bhupender Singh. **Radiation from circular symmetric electromagnetic sources around compressible plasma column.** HP.

8. Kiranjit Singh. **Investigation of angular distribution and polarisation of fluorescent X-ray.** Punjabi. Dr B S Sood, Prof, Department of Physics, Punjabi University, Patiala.

9. Kulvinder Singh. **Growth and study of polytypism in pure and doped crystals of cadmium bromide.** Delhi.

10. Manoj Kumar. **Plasmon excitation by X-ray inelastic scattering in hydrodynamical approximation.** Kumaun. Dr S P Singh.

11. Narayan, Radha. **Heat and mass transfer problems in saturated porous media.** Bangalore. Dr N C Chandrasekhara, Department of Physics, Bangalore University, Bangalore.

12. Panneerselvam, K. **Crystallographic studies on biomolecules.** Madras.

13. Pant, D.D. **Excited state relaxation studies.** Kumaun. Dr H B Tripathi.

14. Ratha, Durga Charan. **Ultrasonic study of polar liquid mixtures.** Sambalpur. Dr K Samal, Prof and Head (Retd), Department of Physics, Sambalpur University, Burla.

15. Sujata, K. **Analytical investigation of digital system design for Mossbauer spectroscopy.** Osmania.

16. Yenagi, Jayashree Viruparappa. **Study of molecules using lasers: Evaluation of some new dyes for lasing and energy transfer mechanism in dye mixture lasers.** Karnatak. Dr M R Gorbali, Reader, Department of Physics, Karnatak University, Dharwad.

Chemistry

1. Ali Mansoor, S. **Electrometric titrations using peroxy monosulfate as a new oxidant.** Madras.

2. Ashok Kumar. **Spectrophotometric and polarographic examination of some pesticides.** Punjabi. Dr A I J Rao, Prof, Department of Chemistry, Punjabi University, Patiala.

3. Basheer Ahamad, K. **Studies on human gamma-glutamyl transpeptidase.** Karnatak. Dr S B Hinchigeri, Reader, Department of Chemistry, Karnatak University, Dharwad.

4. Bhoyare, Vasantlal Kerulal. **Determination of rare metals by solvent extraction and spectrophotometry.** Nagpur. Dr S P Sangal, Laxminarayan Institute of Technology, Nagpur and Dr S B Gholse, Laxminarayan Institute of Technology, Nagpur.

5. Chinckhkhede, Pramila Wadguji. **Synthesis of nitrogen and oxygen containing heterocyclic compounds.** Nagpur. Dr V N Ingle, Department of Chemistry, Nagpur University, Nagpur.

6. Chockalingam, P. **Kinetics and mechanism of oxidation of aromatic acetals by cerium (IV) in acetonitrile medium.** Bharathidasan. Dr K Nambi, Department of Chemistry, St Joseph's College, Tiruchi.

7. Durga Prasad, Annavajhula. Synthesis of some biologically active compounds and pillared clay catalyzed organic transformations. Osmania.

8. Gopa Kumar, S. Metallo-organic derivatives of some trivalent metals with N-(O-hydroxy substituted benzyl) glycines. Kumaun. Dr M Chandra.

9. Hegde, Shrikanth Parameshwar. Studies on the purification characterisation and biological properties of a lectin (S) from *Ariopsis peltata* plant tubers. Karnatak. Dr M Madaiah, Prof (Retd), Department of Chemistry, Karnatak University, Dharwad.

10. Jai Bhagwan. Synthesis of cellulose derivatives and their thermal, morphological and spectral studies. Kurukshetra.

11. Kumaraswamy, G. Photoinduced set initiated generation of amine radical cations: Mechanistic and synthetic perspectives. Osmania.

12. Lad, Babubhai Dahyabhai. Azo dyes based on phenolic resins. Patel. Dr H S Patel, Reader, Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

13. Lincoln, Ch Abraham. Mixed ligand complexes of 3d metal ions with nucleosides in solution. Osmania.

14. Merchant, Riyazali Ramzanali. Oxygenation of organic substrates catalyzed by Ru (III) complexes. Bhavnagar. Prof M M Taquikhan, Director, Central Soil and Marine Chemicals Research Institute, Bhavnagar.

15. Patel, Pankajkumar Parshottambhai. Studies on polychelates. Patel. Dr M N Patel, Prof, Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

16. Prabahar, K Joseph. Synthesis of new heterocyclic systems. Madras.

17. Pujari, Madhuri. Copper and strontium substitution in the bone mineral. Sambalpur. Dr P N Patel, Reader, Department of Chemistry, G M College, Sambalpur.

18. Sahu, Mamata. Studies on condensed pyrimidine and thiazolidinone derivatives. Sambalpur. Dr A Nayak, Prof, Department of Chemistry, Sambalpur University, Burla.

19. Sambrani, Mahantesh Irappa. Kinetics and mechanism of some oxidation reactions of one and three electron oxidants. Karnatak. Dr J R Raju, Reader, Department of Chemistry, Karnatak University, Dharwad.

20. Sanal Kumar, S. Synthesis and characterization of ruthenium complexes and their use as catalysts for the oxidation of organic substrates. Bhavnagar. Prof M M Taquikhan, Director, Central Soil and Marine Chemicals Research Institute, Bhavnagar.

21. Shanmugam, N V. Electroforming of metals, alloys and their electrochemical characteristics. Bharathidasan. Dr K I Vasu 'Surasa', Vinayaknagar, Hebbal, Bangalore.

22. Sharma, N K. Electrochemical and thermal properties of some typical soil of Indore Region. Devi Ahilya. Dr D D Dubey, Krishi Mahavidyalaya, Indore and Dr P V Khadikar, Department of Chemistry, Devi Ahilya Vishwavidyalaya, Indore.

23. Sharma, Neelam. Physico-chemical studies on organotin (IV) complexes of schiff bases. Roorkee.

24. Shukla, Ramakant. Spectrophotometric determination of metals at trace level after separation of their complexes with naphthalene. Devi Ahilya. Dr Ashok Kumar, Reader, Department of Chemistry, Devi Ahilya Vishwavidyalaya, Indore.

25. Sudhakar Rao, V. Formation of imidazo and diazepino benzothiazoles from 2-methyl benzothiazole-6,7- diamine and carbonyl compounds. Osmania.

26. Suryanarayana Rao, Gajavelli Venkata. Synthesis charac-

terization and evaluation of analytical and voltammetric characters of resacetophenone salicylic acid hydrazone. Andhra.

27. Tyagi, Renu. Studies on the application of activated carbon developed from the fertilizer waste for the removal of phenols. Roorkee.

28. Vara Prasad, V N S. Synthesis of some biologically active compounds. Osmania.

29. Winston, S John. Kinetics of nucleophilic substitution reactions between substituted phenacyl bromides and various nucleophiles. Osmania.

30. Yogyaraj. Oxidation of some organic compounds by T (III): A kinetic and mechanistic study. Osmania.

Earth Sciences

1. Hamid Shahinfar. Geomorphic and hydrogeological studies of Pavanje River Basin, Dakshina Kannada District, Karnataka, India. Bangalore. Dr C Naganna, 228, 5th Block, Jayanagar, Bangalore.

2. Joshi, Kaumudi. sedimentological study of the Nag Ghat formation of Bhawal-Binayak Area, District Nainital, U P. Kumaun. Dr S B Mishra.

3. Madhava Reddy, K. Ground water potentialities in the villages of Mothkur and Atmakur Mandals in Nalgonda District, Andhra Pradesh. Osmania.

4. Narasimha Murty, Ayapilla. Origin and geochemical study of limestones from Duddukuru, West Godavari District, Andhra Pradesh, South India. Andhra.

5. Rajinder Kumar. Petrological and petrochemical study of Sudhmahadev and Chanderkot, Jammu Himalaya. Jammu. Dr Y P Gupta, Reader, Department of Geology, University of Jammu, Jammu and Dr B L Dhar, Reader, Department of Geology, University of Jammu, Jammu.

6. Srivastava, Kirti. Some applications of time varying deconvolution operators to seismic signals. Osmania.

7. Vinayak, P V S Surya Kanaka. Some studies on climatic water balance relation to crops in Kerala. Andhra.

Engineering & Technology

1. Abu Sherekh, M S. Turbulent boundary layer over flexible surfaces. Roorkee.

2. Bhalla, Vijay Kumar. Some contributions to hardware and software reliability. Delhi.

3. Narayanan, K K. Investigations on the radiation characteristics of strip loaded leaky-wave antennas. CUST. Dr K Vasudevan, Lecturer, Department of Electronics, Cochin University of Science and Technology, Kochi.

4. Raju, Karothi Jaya. Studies on isolation, purification, characterization and immobilization of a protein from germinated *Eleusine coracana* (Ragi) seeds. Andhra.

5. Sarangi, Bidyapati. Application of thermal analysis for thermodynamic and kinetics studies. Sambalpur. Dr A Sarangi, Prof, Department of Metallurgical Engineering, Regional Engineering College, Rourkela.

6. Sastukar, P J. Steel fibre reinforced concrete beams under the combined effect of bending, shear and torsion. Roorkee.

7. Vaidya, Vidyadhar Sadashiv. Some investigations on hierarchical control of time-delay systems. Durgawati. Dr K K Permar, Government Engineering College, Jabalpur.

EDUCATION NEWS INDEX

A list of select articles and editorials on Education from newspapers received
in the AIU Library during November 1991

EDUCATIONAL PHILOSOPHY

Behl, R K. Value-based education. *The Tribune* 24.11.91

EDUCATIONAL PSYCHOLOGY

Mary, Vijaya and Seth, Richa. Kids with better IQ. *Deccan Chronicle* 10.11.91.

Prema, R. Developing memory power. *The Hindu* 12.11.91.

Ramados, Haripriya. Education: Stop those verbal obscenities. *The Hindu* 26.11.91.

Srinivasan, P. Education: To cultivate a 'questioning mind'. *The Hindu* 19.11.91.

EDUCATIONAL SOCIOLOGY

Basheer Hussain, M. Reservation for the 'other backwards': Keep it for those in need. *Deccan Herald* 28.11.91.

EDUCATIONAL POLICY & PLANNING

Bose, Anima. Perspective on education. *National Herald* 13.11.91.

Nath, Banamali. Strategies of development of colleges. *The Assam Tribune* 17.11.91.

EDUCATIONAL ADMINISTRATION

Amrik Singh. Disadvantages of bigger campuses. *The Times of India* 23.11.91.

LONG NEGLECTED area (Editorial). *The Hindu* 8.11.91.

Ram Reddy, G. 'UGC is not a police agency'. *Indian Express* 17.11.91.

_____ 'We need better teachers'. *Deccan Chronicle* 17.11.91.

Rampal, Anita. Concentration camp style of education. *The Times of India* 16.11.91.

REVISING FEE structure (Editorial). *Deccan Herald* 18.11.91.

Sagar, Keshav. Financing higher education. *National Herald* 26.11.91.

Vattam, Krishna. ICC & autonomy. *Deccan Herald* 2.11.91.

Venkatasubramanian, K. Death grip over universities. *The Hindu* 5.11.91.

CURRICULUM

Craemer, Raoul and Das, Jishnu. On becoming an economist. *The Hindustan Times* 9.11.91.

Hopper, W A F. Framework for curriculum reform. *The Hindu* 12.11.91.

Pillai, Chitra. Good morning environment. *The Times of India* 3.11.91.

Venkata Reddy, K. Importance of inter-disciplinary studies. *The Hindu* 26.11.91.

LANGUAGE & LANGUAGE POLICY

HEALTHY LANGUAGE policy (Editorial). *Deccan Herald* 2.11.91.

SCIENCE EDUCATION

Panneerselvam, A. Fun is in doing. *The Hindu* 19.11.91.

Shantanu Lal. Confessions from a chemistry lab. *The Hindustan Times* 9.11.91.

STATE OF Indian science (Editorial). *The Hindu* 18.11.91.

VOCATIONAL EDUCATION

Ramiah, P. Private technical education: Bane or boon? *The Hindu* 1.11.91.

Rangamani, P T. Expanding opportunities for corporate careers. *The Hindu* 26.11.91.

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Bhambi, Anooja. University via satellite. *The Tribune* 28.11.91.

Chandrasekhara Rao, R V R. Education: Maintaining standards in open system. *The Hindu* 12.11.91.

Khilnani, N M. Advantages of open university. *The Hindustan Times* 10.11.91.

TEACHERS & TEACHING

DELHI's DENS of intellect (Editorial). *Free Press Journal* 10.11.91.

Jha, Akhileshwar. Seminars: A favourite pastime for talking geniuses. *Free Press Journal* 10.11.91.

Mishra, Bibhuti. Classroom communication. *Patriot* 26.11.91.

EDUCATIONAL RESEARCH

Sitaram, K. Quality control of doctoral dissertations. *The Hindu* 5.11.91.

WHAT PRICE Ph.D ? (Editorial). *The Pioneer* 15.11.91.

EDUCATIONAL TECHNOLOGY

COMPUTER GLITCH (Editorial). *The Statesman* 19.11.91.

INFORMATION TECHNOLOGY in British schools (Editorial). *The Hindu* 17.11.91.

EDUCATIONAL EVALUATION

Ramasamy, R. Evaluation, the Australian way. *The Hindu* 5.11.91.

ECONOMICS OF EDUCATION

HIGHER EDUCATION and the rich (Editorial). *The Tribune* 4.11.91.

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LIBRARIES & BOOKS

Ananthakrishnan, G. Inculcating the habit of reading. *Indian Express* 30.11.91.

BOOKS: The tool to transform society (Editorial). *The Assam Tribune* 23.11.91.

Dasgupta, Rajashri. Row over Tagore's work. *The Pioneer* 15.11.91.

Gupta, Suchandana. Child's world is an open book. *The Telegraph* 23.11.91.

Mohinder Singh. Confessions of a dictionary lover. *The Tribune* 30.11.91.

Mouat, Lucia. Goldmine for bibliophiles. *The Pioneer* 15.11.91.

Saraph, Manjiri. Britain beckons. *Deccan Chronicle* 13.11.91.

Vinayak, M. Crumbling dream. *The Hindu* 3.11.91.

STUDENTS & STUDENT ACTIVITIES

Rao, Susheel. Home is a hostel. *Deccan Chronicle* 13.11.91.

Sikand, Yogindar. Caste finds its way into JNU. *The Pioneer* 20.11.91.

Vij, Bhavna. JNU, DU, JMI elections: Debate, muscle power and money. *Patriot* 7.11.91.

SPECIAL EDUCATION

Bhattacharya, Sinchita V. Schooling a gifted child. *The Hindustan Times* 3.11.91.

Khullar, K K. Educating the handicapped. *The Hindustan Times* 10.11.91.

Vaidyanathan, Indu. Perplexing mental handicap. *The Hindu* 17.11.91.

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Unnikrishnan, Namita. Darkness is the time for learning. *The Hindu* 3.11.91.

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Ghosh, Sushmita. Bengal's latest campaign. *The Hindustan Times* 9.11.91.

Quraishi, Humra. Spirit of literacy. *The Hindustan Times* 23.11.91.

ELEMENTARY & SECONDARY EDUCATION

Hopper, W A F. What nursery schools should have. *The Hindu* 19.11.91.

SCHOOLBAG AND the anthem (Editorial). *The Tribune* 18.11.91.

Shruti Devi, V. Tales the bags tell. *The Hindustan Times* 9.11.91.

Srinath, Padma. Towards joyful learning. *The Hindu* 3.11.91.

Thaman, R K. Hazards of early schooling. *The Tribune* 17.11.91.

Vedantam, Vatsala. Ordeal of early childhood education. *Deccan Herald* 24.11.91.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Bakhshi, G L. Education for regeneration. *The Tribune* 10.11.91.

INSTITUTIONAL PROFILE

Bhatt, S C. Indira Gandhi National Centre for the Arts: Scholar's treasure trove of India's varied past. *National Herald* 17.11.91.

SCHWABE: 125 years of an institution (Editorial). *The Economic Times* 1.11.91.

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NATIONAL INSTITUTE OF OCEANOGRAPHY (Council of Scientific & Industrial Research)

P.O. NIO, Dona-Paula, Goa - 403 004
ADVT. NO. 7/RECTT/HQ/ DECEMBER '91

Applications from Indian Nationals are invited for the following posts in National Institute of Oceanography, Dona Paula, Goa :-

I. SCIENTIST 'B' GRADE IV (1) - Rs. 2200-75-2800-EB-100-4000)/ SCIENTIST 'C' GRADE IV (2) - (Rs. 3000-100-3500-125-4500)- ONE POST: (The post is vacant due to long term absence of a regular incumbent and is initially for about one year for NIO REGIONAL CENTRE, BOMBAY. If the regular incumbent does not resume duties, the appointment is likely to be made on regular basis. **Qualifications (Essential)** - First class M.Sc./M.Tech. in Physics/Physical Oceanography or first class B.E./M.E. in Civil Engineering with hydraulics or related field. Candidates with these qualifications having six years' experience or M.E. in Civil Engineering with four years' experience or Ph.D. with two years' experience can be considered for Scientist 'C' i.e. GRADE IV (2). **Desirable** - Good knowledge of computer aided numerical analysis, programming and modelling with special reference to coastal marine areas. **Job Requirements** - Field data collection, computer data analysis and mathematical modelling.

II. SCIENTIST 'B' GRADE IV(1)- (Rs.2200-75-2800-EB-100-4000) THREE POSTS, FIRST POST : (RESERVED FOR SCHEDULED CASTE CANDIDATES) **Qualifications (Essential)** - First class B.E. in Electronics. **Desirable** - One or two years' experience in the design and development of electronic equipment/microprocessor based products. **Job Requirement** - To assist the Scientists in design, development and maintenance of marine equipments.

SECOND POST: (RESERVED FOR SCHEDULED TRIBE CANDIDATES. IF SCHEDULED TRIBE CANDIDATES ARE NOT AVAILABLE SCHEDULED CASTE CANDIDATES WILL BE CONSIDERED. **Qualifications (Essential)** - First class M.Sc. or M.Tech. degree in Physics/Physical Oceanography/Meteorology/Remote Sensing with experience in application of remotely sensed satellite data for oceanographic/meteorological studies, as evidenced by publications/reports. **Desirable** - A good knowledge of computer programming and experience in digital image processing and

development of image processing software for remote sensing applications. **Job Requirements** - To participate in the R&D activities of the Institute's Ocean Remote Sensing Programme.

THIRD POST : (RESERVED FOR SCHEDULED CASTE CANDIDATES). **Qualifications (Essential)** - First class B.E./B.Tech. in Civil Engineering with specialization in computer-aided numerical analysis and modelling and/or M.Tech./M.E. degree in Marine Structures or Ocean Engineering with specialization in numerical analysis and modelling. **Desirable** - Experience in computer-aided data analysis and numerical modelling with special reference to coastal and off shore engineering. **Job Requirement** - Field data collection and computer data analysis and mathematical modelling.

III. JR. TECHNICAL ASSISTANT GRADE III (1) - (Rs. 1400-40-1800-EB- 50-2300). TWO POSTS : Qualifications (Essential) - First class Diploma in Electronics/Electrical Engg. **Desirable** - Experience in the maintenance of electronic/electrical instruments. **Job Requirement** - To assist in the maintenance of scientific instruments in the laboratory and on board ships.

Post No. 2 - Qualification - First class B.Sc. with Mathematics. Knowledge of computer programming and data processing will be an additional qualification. **Job Requirement** - To assist scientists in processing, management of Oceanography data and software development.

IV. JR. TECHNICAL ASSISTANT/ GRADE III (1) (Rs. 1400-40-1800-EB- 50-2300) ONE POST. The post is under Grant-in-aid project entitled 'Biotechnology Information System' (BTIS) initially for a period upto 31.3.1992 and is likely to be extended. **Qualifications (Essential)** - First class B.Sc. in any of the Life Sciences as major subject with postgraduate Diploma/Certificate in Computer handling, programming and data storage. **Desirable** - Two years' experience in handling of bioinformatic system. **Job Requirement** - To assist and be a member of team on Biotechnology Information System.

V. SCIENTIST E-II GRADE IV (4) - (Rs.4500-150-5700) ONE POST. Qualifications (Essential) - First class M.Sc. in Physical Oceanography, Meteorology, Physics, Mathematics OR First class B.E. with specialisation in Fluid Dynamics OR Ph.D. in Physical Oceanography or Marine Meteorology. In the case of candidates with Physics, Mathematics and Engg. background the doc-

torate degree should be in Geophysical Fluid Dynamics with application to oceans and atmospheres. Candidates with M.Sc./B.E. qualifications as above should have atleast 12 years' experience and those with Ph.D. should have atleast 10 years' experience in problems in Physical Oceanography, Marine Meteorology and allied subjects as evidenced by publications in standard National and International Journals. Evidence of Leadership in R & D work is also essential. **Job Requirement** - The selected candidate is required to lead a group of Scientists and organise work in various fields on circulation, air-sea interaction, modelling of oceanic processes and phenomena with special reference to Indian Ocean and assist the Director in planning the national and international oceanographic collaborative programmes and other allied subjects.

The posts of Scientist E-II/C/B are contractual posts for a period of 6 years in the first instance and are likely to continue.

All the above posts involve extensive field work including those on ships and boats. Incumbents will have to qualify at their expense in a course of survival swimming.

Number of vacancies is tentative and may vary depending upon the requirement at the time of selection.

GENERAL CONDITIONS - Prescribed application forms together with details of terms and conditions of appointment etc. can be obtained from the Director, National Institute of Oceanography, Dona-Paula, Goa-403 004 on request by sending a self addressed envelope of size 23 cms. x 10 cms. bearing postal stamp of Rs.2/- and superscribed 'request for Application form for the post of' on or before 15.1.92. Candidates abroad may apply on plain paper if forms are not available.

THE LAST DATE FOR RECEIPT OF COMPLETED APPLICATION IS 7.2.1992.

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APPLICATIONS are invited for the following posts in the University Teaching Departments & Library viz:- (i) Two READERS - one each in Tabla & English and (ii) one LIBRARIAN.

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THE UNIVERSITY reserves the right to (i) keep vacant any of the advertised posts without assigning reasons (ii) relax any of the prescribed qualifications at its discretion, (iii) consider and appoint a person who may not have applied. Candidates called for interview will be required to come at their own cost. Candidates who are in service must apply THROUGH PROPER CHANNEL. Those who have already applied in any of the posts mentioned above in response to our advertisement No.7355, dated 20th March, 1990, need not apply again.

M.K.Gangajaliwale
REGISTRAR

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Applications are invited (on prescribed form) for the following teaching posts, so as to reach the Assistant Registrar, Recruitment Branch, H.P. University, Shimla-171005, alongwith a crossed Indian Postal Order of Rs.20/- (Rs.10/- for S.C./S.T.) payable to the Finance Officer, HPU by January 10, 1992:-

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Economics-1 (for H.P.U. Evening College, Shimla)

III. LECTURERS: (Pay Scale: Rs. 2200-4000) in the following subjects of Teaching Depts:

Mathematics-3, Business Admn-2 (One temporary but likely to continue), Political Science-1 (Leave vacancy for about three years), History-1, Bio-Sciences-1 (Spl. in Microbiology-Leave vacancy for about six months), Tourism Admn-1 (State Plan).

FOR D.C.C.

English-1, Sociology-1, Mathematics-1.

IV. PRINCIPAL-1: (Pay Scale: Rs. 3700-5700 - for H.P.U. Evening College, Shimla).

The qualifications for the above mentioned posts are the same as per U.G.C. guidelines and adopted by this University from time to time.

Candidates already in service should send their applications through proper channel. An advance copy, however, may be sent direct.

Candidates called for interview will have to come to the place of the interview at their own expenses and bring with them their original research papers, degrees and certificates etc. for verification.

The University reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The University also reserves the right to fill-up or not to fill-up the post/s or to call only suitable candidates for interview. The number of posts likely to be filled may vary.

As per University rules, 15% and $7\frac{1}{2}\%$

posts of LECTURERS will be reserved for Scheduled Castes and Scheduled Tribes candidates respectively.

Application form alongwith detailed qualifications can be obtained from the Assistant Registrar, Recruitment Branch, H.P. University, Shimla-171005, personally on payment of Rs.5/- or by making a written request to him accompanied by self-addressed envelope of 23x10 cms. with postage stamps affixed worth Rs.2/- and a postal order of Rs.5/- drawn in favour of the Finance Officer, HPU.

NOTE: i) Applications received on plain paper, applications not in conformity with the requirements as specified in the application form and applications received after the last date will not be entertained and no correspondence will be entertained in this regard.

ii) A person applying for more than one post should send a separate application for each post.

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ADMISSION NOTIFICATION

'MASTER OF COMPUTER APPLICATIONS' - 1992

Applications on prescribed form are invited for admission to 3-year Degree Course in "Master of Computer Applications (MCA)", for the session starting from July 16, 1992.

Bulletin of Information with Admission Form can be had from the Department on furnishing a Bank Draft for Rs.10/- drawn in favour of "The Registrar, University of Delhi" payable at State Bank of India, Delhi University.

For obtaining the application form and the bulletin by mail, a request may be addressed to Shri S.K.Bose, Officer In-charge, together with a self-addressed envelope (25 cm. x 17.5 cm.) with stamps worth Rs.3 affixed.

LAST DATE FOR RECEIVING THE ADMISSION FORM IS FRIDAY, THE JANUARY 17, 1992. Date of admission test to be held only in Delhi at the Department is **SUNDAY, THE FEBRUARY 23, 1992.**

HEAD

West Zone Inter-University Youth Festival

Nagpur University



A Folk Song rendered by Banasthali Vidyapith



Overall Championship Trophy being awarded to Bombay University



PGI Convocation

Shri M. L. Fotedar, Union Minister for Health, delivering the convocation address at the Postgraduate Institute of Medical Education and Research, Chandigarh.



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University News

1992

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C. P. Y. B. I., MYSORE

MONDAY, DECEMBER 23, 1991

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Y.S. Parmar Varsity Convocation

C. P. Y. B. I., MYSORE



From L to R : Dr. B.R. Sharma, Vice-Chancellor, Shri Virendra Verma, Governor of Himachal Pradesh and Chancellor of the University, Dr. Bal Ram Jakhar, Union Minister for Agriculture, who delivered the convocation address, and Shri Radha Raman Shastri, State Education Minister at the convocation of Dr. Y.S. Parmar University of Horticulture & Forestry, Solan.

KOTA OPEN UNIVERSITY

Present Courses at a Glance

S No	Course	Minimum Duration	Minimum Age	Eligibility Condition	Experience	Remarks
1.	Preparatory Course for B.A./ B.Com.(BAP/ BCP)	Between six months to one year	19 years for those who do not possess any formal qualifications but have passed the entrance test of this university		—	There are no written exams for this Course
2.	B.A./ B.Com.	3 Years		10 + 2 Pass Or Entrance Test Pass + Preparatory Course done	—	
3.	B.Ed. for IN-SERVICE TEACHERS ONLY	14 Months	21 Years	Condition with 3 Years Teaching Experience in Govt./Aided/ Recognised Schools and presently serving in Rajasthan		Three weeks contact camp is an essential component of this course
4.	Diploma in Management (Module 1) of Three year (Three-Module) M.B.A. Course	1 Year	25 Years	i) Graduates with 3 Years Managerial or Supervisory Experience or ii) Non-Graduates with 6 Years Managerial or Supervisory Experience (in exceptional cases only)		M.B.A. is a three-module (three years Course)
5.	Diploma in Library and Information Science	1 Year	—	i) XII Pass OR ii) 5 years' Work Experience at District Level Library for those who are not XII Pass		Two weeks contact camp is compulsory component
6.	Bachelor's Degree in Journalism & Mass Communication	1 Year	25 Years	i) Graduation OR ii) Non-Graduates with 6 Years' experience in Journalism Radio/TV etc.		—
7.	Diploma in Tourism and Hotel Management	1 Year	21 Year	i) Graduate with 1 Year Managerial/ Supervisory experience OR ii) Non-Graduate with 3 Years' Managerial or Supervisory Experience		—
8.	Diploma in Labour Laws, Industrial Relations and Personnel Management	1 Year	25 Years	i) Post-Graduation with minimum 40% marks OR ii) LLB OR iii) Graduates with 3 Years' Managerial/Supervisory experience OR iv) Non-Graduate with 6 Years Managerial/ Supervisory Experience (in exceptional cases)		—
9.	Certificate Course in Computer Programming	6 Months	—	i) Graduation OR ii) L.D.C. and above with 3 Years' experience and Proficiency in English		—

K. Venkata Reddy*

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Editor :
SUTINDER SINGH

In the last ten years, the Indian universities have been progressing by accumulating crises — the crisis of numbers, the crisis of finance, the crisis of political interference, and the crisis of student unrest. To this disturbing list of crises one is constrained to add the crisis in teaching.

Though universities are primarily teaching institutions, research is obviously getting the better off teaching. In other words, teaching is tending to become the servant of scholarship and research, instead of being at least its equal. And more often than not, research is concentrated on at the cost of teaching. This is what makes the crisis in teaching in our university today.

Many members of university staff do not seem to give enough of their best and freshest attention to postgraduate teaching. They are more interested in their own research work and in supervision of research scholars. Thus, though they are primarily teachers, their concentration is on publication of papers and books and production of M.Phils and Ph.Ds.

Perhaps, the university teachers cannot be blamed for this paradoxical phenomenon. The very system of university staffing and of promotions to higher cadres is such that the teachers are made, rather tempted, to indulge in research and publication activities even at the cost of their teaching.

Today, a wise university teacher is he who spends most of his time and energy on publication of research papers and books rather than on teaching his students. For, no university is bothered about taking into consideration what kind of teacher one is, at the time of interviewing the candidate for promotion to a higher cadre. "How many papers have you published and how many books? How many doctorates have you produced and how many candidates are you guiding for M.Phil. and Ph.D.?" — these are the questions invariably put to the promotion-seeking university teachers at every interview in almost every university.

Small wonder, therefore, if research has become an honorific word in Indian universities. And, many of those who glorify it know more about research than they know about teaching. More often than not, it is said, and believed too, that one cannot be a good university teacher unless one carries along with his teaching a substantial commitment to research, and that one cannot keep alive in one's subject unless one is at work on the ever widening frontiers of knowledge.

But, it is erroneous to think that one cannot be a good university teacher unless one is a dedicated researcher. One who is temperamentally suited to, and has a flair for teaching, and, what is more, capable of strong commitment to teaching, could be a good and successful teacher. One need not necessarily be an able researcher in order to be a good university teacher. Also, not all able researchers can hold their passion for research and their duties to postgraduate and undergraduate teaching in the delicate balance that is called for. Moreover, it cannot be denied that some very able researchers are indifferent, and even dreary, teachers.

(Contd. on page 9)

* Prof. of English, Sri Krishnadevaraya University, Sri Venkateswarapuram (P.O.), Anantapur - 515 003 (Andhra Pradesh)

Some Criteria for Excellence in Teaching

J.N. Kapur*

Introduction

My article on "Some Criteria for Excellence in Research"¹ evoked a very positive response from the university community. In fact some persons made suggestions that I should write companion articles on "Criteria for Excellence in Teaching and Learning."

These appear to be necessary, since as number of papers is taken as the main criterion for research, good delivery of lectures in the classroom is taken as the main criterion for good teaching. However while the number of papers can be measured objectively, a good delivery in the classroom cannot be measured so easily, with the result that excellence in teaching is almost completely absent as a criterion in our appointments and promotions of teachers.

In fact, in the absence of any well defined criteria, everybody is supposed to be an equally good teacher and so appointments and promotions are made mainly on the basis of academic career, research productivity and performance at the interview. Excellence in teaching is not even mentioned in the selection process. It is not surprising, that teaching continues to be a relatively neglected activity and conscious efforts at improvement of teaching are conspicuous by their absence.

In one university advertisement, I was pleasantly surprised to find *good teaching* and *development of new courses* as a criterion for appointment. When in the selection committee, I asked the Vice-Chancellor for its interpretation, he casually said "It was put down by somebody when the statutes were made, but we have never considered it; you can as well ignore it". When I asked the head of the department whose teachers were being considered for promotion, he simply said: "They are all good teachers. The question of developing new courses by individual teachers does not arise because the courses are laid down by the board of studies, in which most of teachers are not present". When I requested him to grade the teachers according to their teaching abilities, he regretted frankly his inability, since he had very little detailed information about their teaching. When I pressed him as to how he knew that they were all good teachers, he said "I have never got a complaint against any one of them!"

* *Jawaharlal Nehru University and Mathematical Sciences Trust Society, C-766, New Friends Colony, New Delhi - 110065.*

This is not the situation in other countries, where in appointments and selections, teaching receives explicitly as much importance as research and other activities and every teacher is kept alert about his teaching by pressures of students, peers and educational administrators.

In Australia, the most important demand made some years ago by their National Students Union was for *good teaching* and the government had to start a *higher education unit* in every university to help the individual teachers in improving their teaching.

In Canada, I met many senior university professors, who were miserable because their students had declared them to be below average in teaching and they all wanted to devote more time to teaching, as they could not afford to lose the respect of their students and other teachers.

In our country, there is no pressure from students or other teachers or educational administrators or society on any teacher to strive for excellence in teaching. The only pressure comes from his own conscience and his love for his students, his subject and for teaching. Fortunately this pressure is sufficient for a large number of dedicated teachers, but these teachers get no help from a rather hostile environment.

We have therefore to design a system in which every college and university teacher does his or her best for teaching and nobody is able to relax and treat his responsibility of teaching lightly.

The most important factor is that we should lay down very well-defined criteria for teaching and see that these are observed as far as possible. We should lay down these criteria so that students and teachers are aware what excellence in teaching implies and while good lecturing is important, good teaching can go far beyond good lecturing.

In this effort, we can take some help from criteria used in other countries and the manner in which these criteria are implemented there.

Criteria Contained in Student Reaction Survey Forms²

Student reaction surveys are conducted in almost all universities of the world and also in a few universities in India. At the end of a semester a questionnaire is given to the students containing questions about the teaching and the course and the students answer these questions honestly. Their answers are passed on to the individual

teachers to help them to improve their teaching and the course. These are also passed on to the administrators as an important objective input about the teaching ability of the teacher, which can be used when necessary. Anonymity of the students is ensured. We give below some points about which information is sought in these forms, since these give criteria which students, teachers and university administrators consider important about teaching.

- The depth of knowledge that a teacher has of the subject he is teaching.
- Ability of the teacher to explain the subject matter clearly.
- The understanding of the needs of students by the teacher.
- The willingness of the teacher to help the students and to remove their difficulties.
- The availability of the teacher for the students.
- The patience of the teacher with the questions asked by the students and with their views.
- The encouragement which the teacher gives to the students about asking questions.
- The ability of the teacher to make the class interesting and stimulating.
- The skill of the teacher to make the students think for themselves.
- The teacher's willingness to vary his methods and to show flexibility according to the needs of the students.
- The discipline exercised in the classroom.
- The quality of the textbooks used.
- The quality of books suggested for reading in the library.
- The quality of assignments given.
- The quality of grading and the care with which it is done.
- The punctuality and regularity of the teacher in taking his classes.
- The standard of lectures given by the teacher.
- The care which the teacher takes to see that all students follow his lecture.
- The ability of the teacher to motivate the learning of the subject and of each topic in the course.
- The freedom with which the students can communicate with the teacher.

The students' opinions are also sought on topics like the following :

- The relevance of the course.
- The usefulness or otherwise of different topics in the course.

- The interest of different topics in the course.
- Their suggestions for deletion and reasons for the same.
- Their suggestions for addition and reasons for the same.

A teacher may teach 20-40 courses over a period of 5 years to a total of about 2000 students. A few of the students may be biased, but on the whole, the opinions expressed are fair and are very useful to the teachers for the improvement of their teaching.

Some Additional Criteria Laid Down by Universities

As we said earlier, good teaching is something much more than good lecturing. As such, the universities get additional inputs direct from the teachers concerned about the following points:

- *The number of different courses taught by a teacher over a period of time*

Usually a teacher changing his courses every two or three years is preferred to a teacher teaching same courses for five to ten years.

- *The level of courses taught*

Usually teachers teaching courses both at undergraduate and postgraduate levels or in undergraduate colleges, teaching courses to all classes are preferred to teachers teaching one or two classes only.

- *The new courses developed*

In our external examination system, this may not be easy for teachers, but in the internal assessment system or in autonomous colleges, this should be feasible. Teachers developing new courses or new sets of notes which may ultimately develop into new textbooks are preferred to teachers teaching from the same notes years after year.

- *The textbooks used*

Teachers using latest editions of latest books are preferred to teachers using old textbooks. Teachers teaching from the textbooks they used in their student days are not considered as good teachers.

- *Innovative methods used*

Teachers using transparencies, films, videos and computers etc. are encouraged.

- *Participation in professional activities*

These include participation in refresher courses, orientation programmes, summer schools, educational conferences, subject conferences, writing articles for professional journals, participating in curriculum

development projects, undertaking research projects in teaching and other similar activities.

The Importance Attached to Teaching Ability in Appointments & Promotions

Each person who is shortlisted for consideration as assistant professor, has to give a one-hour seminar, in which students and teachers are present. They test the knowledge of the subject as well as the ability to explain the subject lucidly and clearly. Students give their opinion about the teaching ability which the selection committee has to take into account. Even before this, when a student is preparing for his Ph.D degree, he has to help the undergraduate students in their tutorials and he does this work seriously, in order to prepare himself for the seminars and for the teaching career.

Persons who apply for promotions are also required to give seminars. In addition, the reports of the student reaction surveys are made available to the selection committee. The self-assessment proforma prepared by the teacher giving information according to Section 3 is also given to selection committee. The selection committee may also get information about his teaching capacity from his former students and his colleagues.

Thus every selection committee has enough inputs about the teaching abilities of all the candidates. The situation is so unlike the situation faced by our selection committees which have no information except that provided by the heads of departments and this information also has lost much of its validity, because of the rotation system of the heads of departments.

Under these conditions, there is much more incentive for good teaching in other countries than in ours.

Some Questions which the Teachers can ask themselves

The following questions also suggest some relevant criteria for excellence in teaching :

- Do I know the names of all my students? Do I have sufficient knowledge about their learning styles?
- Do I have sufficient knowledge about the psychology of learning by young persons?
- Will it be useful if I ask some good teachers to sit in my class and advise me about improvements concerning my teaching style?
- Will it be useful if I get one or two of my lectures video-taped so that I can critically examine my mannerisms, my use of black-board space, my movements in the classroom and the reactions of my students to my teaching?
- Do I consider teaching as a noble profession? Can I be a successful teacher if I am unhappy about being a teacher?
- Do I love my subject? Do I consider whatever I am teaching as worth teaching and worth learning? Am I excited about teaching it and can I make my students excited about it?

- Do I know the topic that I am teaching in sufficient depth? Do I have confidence for being able to answer any question that the students may ask?
- Do I have sufficient knowledge about the various textbooks and supplementary reading material to be able to guide students according to their needs?
- Am I learning and acquiring new knowledge regularly so that I can appreciate the problems which the students face in learning new topics?
- Am I giving my students knowledge for just passing examinations or am I giving knowledge in a way that they can think for themselves and learn on their own?
- Am I setting a good example to my students by my conduct and character? Am I giving them the right moral and ethical values?
- How can I make myself a better teacher in every sense of the term?

Distinguished Teacher Awards

One important means of encouraging good teaching is through distinguished teacher awards in higher education in individual universities, individual States and at the national level. If we can give almost hundreds of awards for research, there is no reason why we should not be able to identify good teachers. In fact, in many countries such awards exist at all levels and have played an important role in encouraging good teaching. If society wants to encourage good teaching, it must encourage good teachers in every way.^{3,4,5}

Concluding Remarks

Excellent education can be the result of excellence in research, excellence in teaching, excellence in learning and excellence in management. We shall have excellence only if the students, teachers, researchers, members of the public, all want excellence in terms of criteria arrived at by a process of discussion and consensus.

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Priorities in Higher Education Planning

K.K.Bajaj*

Our education has a history of illfated flirtations with myopic political planners and run-of-the-mill educationists. The result has been that besides a few impressive statistical footnotes showing quantitative expansion of institutions of higher education, education continues to elude the target of creation of human resource in the country. Many arguments continue to be given to explain the poor turnout and irrelevance of our products in the context of emerging occupational patterns. But this continues to be acknowledged that our total national effort has not yielded the desired result and every time a new planning process is initiated and policy guidelines announced, there is a clash of ideas between the old guard and the new forward looking young planners but all the same we continue to be baffled and always like to begin afresh. This agony apart, the process always leads to redefine the priorities which are identified as targets to be addressed by education. There has been a spate of reports with cyclic regularity on the status of higher education in our country, appearing from time to time and by now we have quite a historic treasure in them in a narrative shape. But if their underlying silence were to be read it would show a distinct impasse between what was prescribed and what was implemented – may be due to lack of political will for the so-called political changes that democracy had brought about in the course of time. But we do have an inexplicable fondness for seminars and reports – maybe for their 'academic merit and plausible generalisations over our common concern. But planning has just remained historically inadequate because on planning there could not be a referendum either about its conception or its implementation at any level and least on the national level, because of our diverse cultural mapping, regional imbalances and inequitous resource distribution. Despite the fact that the last 'Perspective paper on Education – towards an enlightened and humane society' takes an integrated and holistic view of education and focuses on almost twenty-six important issues and tries to see them in all their relevance and dichotomies, there is no national consensus on educational planning. Perspectives have been

identified and educational pyramid in school seen but with all these pious revelations where do we go along with all our literacy missions which are emphasised to bring about total literacy which is so essential to the survival of our democracy? The planning goes awry and implementation gets shattered on its way to survival due to unprecedented expansion of institutions without sufficient support and infrastructure. Caught in this vice-like grip and on account of politicisation of our entire governance system tied to consequential corruption, planning of higher education is a challenge to be taken very seriously if we mean to face the crisis in education that the world is facing all over now.

Our New Policy on Education envisaged radical reconstruction of educational system to improve its quality at all levels. For this, present problems of financial outlay, equity and excellence are required to be studied. Where education has to reach the uncovered areas for improvement of quality with modernising techniques, a new thrust about the core content of higher education has to be identified. Higher education commences with the colleges. Here mediocrity is the first area of complete cooperation among the students, teachers and the managements. Here democracy is fully pervasive like the rain water finding its way in all directions. The influence peddlers have been working as teachers in some institutions, prescribing courses which have remained unchanged for decades and who are linked to large publishing houses and who otherwise run their business in large towns under the eyes of the elite who send their wards in the hope of assured professional careers through extra coaching. They are a living bane of the system in our country at the collegiate level. Decayed, decrepit and tenuous is still the link that the colleges have with the universities under the extinct affiliating system. While opening of new colleges is the unchallenged privilege of the politicians or the affluent minority communities in the country, the universities acting as the custodians of academic standards silently carry out the formality of sorts in promptly granting temporary affiliation thereby consciously contributing to the beginning of the lowering of academic standards in unviable colleges in the name of extending the reach of higher education to the underprivileged and to those areas which did not have the colleges. While all the

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universities speak so loudly about the need to maintain academic standards yet when it comes to granting affiliation to a substandard college they are enthusiastic enough to commit the same at least to eternal mediocrity, after getting over the formality of stipulated conditions and requirements. But ours is a unique way of looking at problems and institutions and yet planning in the name of equity and democracy. An open university or a central university and a state university could be poor cousins of each other and incomparable entities in our system. One could be on an expansion spree like a prodigal with imported academic kits and latest communication techniques and tools while the other may starve in ignorance in the name of austerity measures on the part of the parent state.

In planning, innovation friendly interventions coming from the experience of the educationists, can be utilized as lessons in our development experience. The expenditures are frequently targeted to certain such topics and schemes as are neither region specific nor are globally compatible and the result is that the mindless spendings on the part of the institutions at times act as barriers to their quest for progress. Today education has a public utility role and a social responsibility function. Expenditure on education is required to produce results which have corresponding linkages with population, economy, human resource, integration, equity and promotion of excellence among our youth. Higher education has to cultivate an awareness which fosters competition and innovation in them. This must lead to efficient use of our sparse resources, despite openness to international flow of goods, services, capital, labour, technology and ideas that spur economic growth. Education must contribute to the establishment of a macro-economics which is the essential foundation of our sustained progress. Planning has to be creative and independent in the larger national context without showing attachment to any dubious and short-lived political policy perambulations. A long term centralised authority may not survive for ever as we have seen in the case of all powerful centralised socialist States in Eastern Europe and in USSR but higher education has to provide a sane and stable foundation to our entire future economic and social perspective for our survival. The planning process in the higher education sector must take into cognizance the emerging fundamental issues of our contemporary world along with the information revolution encompassing every sphere of our life. For instance in this age of superconductivity and fibre optics we could ill-afford to stay in

our orthodox mental grooves of bullock-cart age. The revolution in thought and action has to accompany our planning now. We may be benevolent saints but the economic crisis calling for structural changes could not be lost sight of so as to endure our survival in this age of openness and transit technology which continues to generate economic growth across nations. Our planning must assimilate technology by accommodation of foreign experts and encouraging exchanges with research centres worldwide.

Collegiate sector is the living conduit providing for our human resource generation. Better planning is needed here which may lead to greater coordination and monitoring. This is the sector which has necessarily to be more adept at managing the reform in the outlook and sense of social responsibility of our youth who are otherwise so vulnerable and volatile. Looking to the large size of failures that marks the collegiate system, and its resultant disillusionment and disappointment in our social system, it is here that much of brain storming needs to be done. If alleviation of poverty has to be the central objective of development planning, then our collegiate system has not contributed as much as it was expected to have contributed towards this goal. Our planning has simply remained an uncritical collection of unreal proposals which got passed on to the colleges through the universities or through their own wisdom over a period of time. Half-hearted UGC interventions notwithstanding, there was never a central purpose or a national mechanism to ensure that the colleges efficiently contributed to the set academic targets in a unified manner and approach, to enhance the quality of education and make their products usable in the society. Squeezed between resource crunch and increasing population, planning process always had to face the hardening public demands and complacency of a majority of teachers. The colleges, by and large, have failed to give the desired finish and decisive edge to their products who could be willingly accepted in the highly fluctuating job market. In most of such cases the degree holders have met with more of disappointment at having wasted their time in colleges and in not having attained anything gainful which could help them in getting settled in life. Whole lot of a common corpus of causes could be held responsible for this collapse. In itself it may be a social challenge but then it is a large social and academic failure as well. At best the students had a highly episodic encounter with their teachers in their classes and their careers were marked only with admissions, elections and examinations, interspersed with

some classes of course. The teachers and the students never had the shared goals to guide them. The colleges were at best the empires of diverse people with no concomitant responsibilities and foreseeable future. If development is the most important exercise in which we as academicians have to participate then we have not taken up the challenge and have in fact kept it outside the pale of our duties and comprehension. Socio-economic and technological revolutions of the world apart we have not planned for the same as such. Like most of the farmers who have become subsidy minded and accept new packages only when these are offered along with some new incentives, most of the teachers too are not prepared to accept any changes or innovations either in curricula or their orientation unless there are monetary advantages tagged to these. Even the Academic Staff Colleges – a concept aimed at institutionalising professional training and ensuring enrichment of teachers – would have gone unattended had there been no incentives and service benefits attached to these. No one counts professional enrichment as worth anything unless it entails some appropriate monetary padding. Here even the State intervention is meaningless. The UGC would not be able to move such culture ridden teachers in their grooves.

Given the challenge of the higher education to planning that comes with constant changes in technology and competition from abroad, it is not possible to suggest any straitjacket format which could be uniformly applicable to all kinds of institutions of higher education in the country. There is much talk about the decentralised model of management and development. There is an apparent correlation between functional autonomy and state governance of the colleges. Eric Hoffer, the great American philosopher said "In a time of change, it is the learners who inherit the future. The learners find themselves equipped to live in a world that no longer exists." If the students have to be prepared to inherit the sense of security and confidence with which they have to face the future then they have to be left to the charge of their teachers who have to be accountable to them and who would have to be careful enough to tailor their courses which would sell and which would settle them in life. If they fail to do so they would no longer be able to sustain their existence. Our universities, like our colleges, suffer from many distortions such as of policy planning and execution. In a university it is fashionable to blame everything on the Vice-Chancellor. Partly it may be true in many universities because instability haunts the Vice-Chancellors as a fact of life. Past over forty years have thrown numerous instances of summary dismissals, coups d'etat and student actions, murders on the campuses and suffering on account of

the lack of much needed political patronage to them. Though Radhakrishnan brand of Vice-Chancellors is now extinct and the present Vice-Chancellors have only to serve the compulsions of coalitional politics with patience, skill and conciliatory style, yet many of them attempt to create a working semblance of stability but lack academic leadership and credibility to sustain their stay. Many simply tailor policies to balance conflicting interests of peers and pressure groups and provide for fire fighting strategies on the campuses. They indulge in skewed politics of groups to appease active politicians, government bureaucrats, the politically ambitious teachers and the leaders among karamcharis. They characterise their terms with popular cosmetic changes which do not basically impinge upon the status quo of things and for them planning has no relevance and meaning in any academic or institutional context.

Colleges essentially constitute the higher education system. Universities mainly contribute to the research effort and the directional interventions that enrich the quality of higher education. Both colleges and the universities are not the administrative centres but abodes and avenues of higher education in their intrinsic existence and reputation. Their strength lies in their coordination and concerted efforts to give higher education a new direction and national purpose. In the world economic market the output is assessed and priced as per its utility and social relevance. Here the quality is the most important ingredient in a competitive environment of a shrinking world. Myopic managers of education who suffer from regional inhibitions and constrained vision and who cannot go beyond the frontiers of local wisdom, will lose in a world without frontiers. The modern definition of management enjoining upon all to manage men timely, will alone earn them respect and credibility. With technological changes sweeping the world in the exploitation of resources and in making them more productive, better directional practical planning will have to be envisaged. The pace of improvement will have to be accelerated with time. The gaps will have to be bridged quickly. Achievement indicators will have to be redefined in terms of social output and relevance.

Focus on development demands qualitative improvement in life. This in itself is a great challenge and calls for suitable planning at the level of determining the course contents of our academic packages. The crucial concern at striking complementarity with the fast changing scenario of world order will have to be reflected in our planning process. Spending priorities will have to be reappraised and correlated to economic returns through the formulation of sound human resource policies at the level of higher education. The key to

development lies through technological progress. Innovations will have to be encouraged at all levels. In fact the changes in the new world economic order should be the disciplining force in education. Social groups and selfless workers among our teachers alone can bring about this much needed spirit of reform and commitment in our system. The indiscipline overhang will have to be dispelled. Rethinking on these lines will appear unassailable. Investment in education has its own justification even in economic terms. Equally however it continues to be argued that investing in education buys no guarantee of faster growth when economies are badly managed, investment in people may also go waste. But it cannot be denied that education is an important component of overall development. Several indicators are used to measure welfare such as life expectancy, infant mortality and school enrolment etc., yet none of these is without drawbacks. Education has to be strengthened in order to be more responsive to human requirements and social calls. Political exigencies may determine the timing of educational reforms and inputs but there is no point in defending status quo of poor quality students as products as they are to delay long range and immediate deployment of resources to improve the lot of the system. Economic and political crisis apart, the opportunities for educational reforms, through timely planning, should not be lost sight of, otherwise the social changes could be drastic and compelling. The changes now could be gradual and smooth. Once the vision gets blurred and urgencies become distortions, the deluge follows. Structural reforms, no matter howsoever minor or major they be now, should not be delayed, irrespective of political gainers or losers. Public in a democracy has a stake in all these reforms and these cannot be delayed.

For the development of intellectual capabilities of our students no administrative hierarchies matter. This has to be a national commitment. The colleges and the universities have to be brought up as nurseries of national consciousness through appropriate teaching, updated research and student amenities. While we may debate the question of clarity on educational priorities, programmes and strategies, our goals cannot be negotiated. The planning has to be unidirectional and the points clearly understood in all their urgency and approach. The old and obsolete academic packages have to be dismantled and new information loaded updated modules offered in their place. Higher education immensely contributes to economic growth and political advancement of the nation both through the agency of its students and its institutions. So both the institutions and the students require to be strengthened. In planning for the improvement of the system teachers

cannot be ignored. If the system has gone sick, the teachers have also contributed to this sickness while standing outside as dispassionate bystanders. The nation also did not assign them the due responsibility which would have made them accountable to the society and their products. While at places they were offered their role and responsibility in the autonomous colleges and departments and they were reluctant to own the same, yet at other places they were made to stand outside the system and came to the institutions without any sense of involvement and commitment towards their students. Some blamed their students for lack of interest while at other places the students blamed their teachers for lack of preparation and interest and the fatal circularity of the argument still continues. There may be some truth in both the views yet a lot more requires to be planned to make the teachers accountable and answerable in their role and responsibility towards their students. Simultaneously measures have to be planned for youth services and other activities whereunder they could be gainfully engaged so that this may lead to their participation in national effort. Both in the matter of teaching and tutorials, a new whip requires to be issued by the UGC or the State Governments or the authorities in the universities to make the teachers and students adhere to classes, examination schedules and in the matter of number of teaching days which should not go below the level of a hundred and eighty in a year. Teachers and institutions may be given functional autonomy in determining their courses while carefully watching that this autonomy is not misutilised at any level and it does not lead to insularity, alienation or complacency on the part of teachers and lack of vertical mobility in favour of students and their mutual interaction. Autonomy may also not result in autocratic functioning of institutions which ignore social responsibility function assigned to education in a democratic country.

Affiliation of colleges which is the sole prerogative of the universities, should neither be a degenerated extraneous exercise or a formality of sorts nor should it mean undue delay in the recognition of the institutions on the part of the universities. There has to be a healthy relationship between the colleges and the universities to foster their mutual respect and academic interaction. Interest patterns and personalities in the colleges and the universities should not clash but instead should help mutual understanding and growth to the advantage of students. In the entire planning perspective the Vice-Chancellors have to offer purposive direction and leadership for the assured development of the colleges and improvement of course contents. Our planning should respond to change. Institutional autonomy may

contribute to this. Growth by experience is usually slow and even accidental. Success patterns of management of change have often come through proper planning at the nodal levels. Education is no exception to this axiom. Depth and dimensions of planning could vary with regard to its level of implementation but there could be no doubt that at the national level both for the colleges and the universities, rethinking has to be done if planning has to address itself to the vital needs which would ensure improvement in the standards of the colleges and the universities. Management of human resources would always be a crucial area but for this planning has to be given its due place and importance. The conceptual umbrella has to be provided by the think tank of the educational planners drawn from experience and innovative exposure of the renowned teachers from wherever they may be. They alone can focus on planning of the contents of the desired change in our system. Our system despite its being so sensitive, is a living reality and it cannot be wished away in the hope that it will get into the change that the society will require in course of time. A conscious effort will have to be

planned with utmost caution and precision both in the colleges and the universities, both in the rural areas and the metropolitan cities, both for the teachers and the students in terms of their course contents and their orientation programmes in the staff colleges or elsewhere, and both in terms of the relevance of our products and their future contribution to human resource generation. Education must subscribe to its definition of aiming at enriching the quality of human life and enhancing our capacity to cope with the challenge of change in a fast changing world order, despite the growing complexity of social and occupational dilemmas. It must help man rehabilitate his cultural identity while understanding future with the help of greater inputs in the present. The colleges have to be brought centre stage and their role redefined with grant of dignity to teaching profession and inculcation of discipline among our students. The uncertainties to be removed have to be anticipated only through proper foresight and planning for them and through timely intervention on the part of teachers and planners alike in the larger national context.

Crisis in University Teaching

(Contd from page 1)

No one can be a good teacher unless he is vigorously alive in his subject. If his subject does not have a surge of excitement for him, it certainly will not have for his students. Once he has that deep and innate interest in his subject, he will not lack excitement in broadening his grasp of his subject, absorbing and digesting the new knowledge that is being won on the frontier. He could also instil in his students a lot of curiosity in the innumerable links his subject has with other cognate subjects, and in the illumination that his subject throws on the whole human enterprise.

Taken in this way, a subject that is worth teaching bristles with pedagogical problems – how to organize it so that its complexities yield to student effort, how to improve lucidity in exposition with the right words and the telling illustrations, how to design suitable topics enabling the good student to march with him to the heights. Is there not here enough intellectual activity, enough bait to keep curiosity alive, enough demand on a scholarly mind to last a lifetime?

Research should, no doubt, find its proper place in

the Indian universities. The purpose of research must be to enhance the quality of teaching as well as to enliven it. In short, research should make a university teacher a better teacher. But, in practice, research and teaching seem to be going on two parallel lines. This is uncalled for. Besides having application and relevance to the felt needs of society, research should be a handmaid to teaching.

Anyway, it is time the present undue concentration on research work in universities even at the cost of teaching, was modified and postgraduate teaching restored to parity. This could possibly be done only when the university authorities give as much importance to the quality of the candidate's teaching as to his capacity for research, in recruiting and promoting university teachers. The university must work out modalities to assess the quality of teaching of their teachers. In assessing the teachers, the universities would do well in involving the students also by way of administering questionnaires on the performance of teachers. The sooner this is done the better for the university life.

Planning Automated Library Services

E. Rama Reddy*

Introduction

Careful planning is a critical step in automating library services. Several points are to be taken note of before a library gets into the automated activities. The vendor of the computer system may also help the library in major implementation activities. The following points are to be considered before a decision is taken.

- (1) Profiling
- (2) Database preparation
- (3) Barcoding
- (4) Training
- (5) Selecting and installing the equipment

The library should take the help of the vendor of the computer system in the process of profiling, training and installation separately. The library should identify a coordinator to work with the vendor on various matters involving the installation activities. Apart from the coordinator, it is necessary to have a Library's Automation Committee consisting of not more than 8 people representing different functional areas of the library. The outcome of the discussions will help in opening new channels for implementation in different areas. When concrete ideas are formed on different functional areas, the vendor who is supplying the system should be invited and after thorough discussion, a contract is signed. The vendor should undertake continuous support to the system.

(1) Profiling : Profiling is a process of identifying and incorporating the specified policies and procedures of the library. The vendor of the computer system should assist in translating the library's practices and procedures during the series of visits and discussions. Information about the library's practices are to be listed describing the specified profile items in detail. Among the items covered in the profiling area :

- (i) Cataloguing policies, locations, items on circulation categories, material type categories and classification scheme;

- (ii) Search strategies for staff and the users;
- (iii) Circulation policies, loan policies, fine and billing policies;
- (iv) Systems authorisation; and
- (v) Text to be printed on overdue charges, recall requests and reservation notices etc.

The bibliographic record is the foundation of any automated library system. It is advisable to have Machine Readable Catalogue (MARC)-formatted database. It is also important that all the members of the library automation committee be familiar with the structure of the MARC-format. It will be useful that all data on bibliographic archive tape or on CD-ROM is loaded on to the library system, if available with any vendor but the library will have the option to exclude tags from online records. The system also should allow to specify how duplicates will be detected and when new item records are to be created. The library may also modify work forms for adding new bibliographic records in any of the available formats. The MARC-format allows many access points for searching.

The menus for initiating and narrowing searches can be based on search strategies commonly used in the library, and search options may be defined separately for different classes of users. The Project Manager of the vendor can help the library to develop most useful search strategies. In other sections of profile, the library can define patron categories and privileges. These specifications control circulation transactions, such as loan periods for both regular and reserve collections, renewals and holds and the printing and sending of notices etc. The library circulation backup system and the parameters used to identify the ID's are also to be specified. This profiling process relies on information about the library's policies and procedures. These policies and procedures are to be documented and reviewed by the library staff to ensure accuracy and comprehensiveness.

(2) Database Preparation : It is advisable that the vendor offer data processing services to help preparing the database that will be loaded into the library system. One of the most common delays in implementation of automated library functions is database preparation. The delays can be expensive and frustrating and occur

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because of several reasons. It is extremely important that the library identifies all the activities related to database preparation and establish for each individual involved in this process its own schedule and commitments. If the library participates as a sub-system of a larger library system, the larger library system may be in a position to supply the tapes to create local database. It is also possible that the bibliographic records from several institutions can be integrated into a single database. The participating libraries can get benefited by using the database.

(3) Barcoding : The library automated system should accept barcoding systems available in the market. The barcodes are printed machines-readable black and white vertical bars that represent characters by varying the height and width of the bars and the space in between them. The characters encoded in the barcode represent the unique item or patron's ID card. The barcode labels available in the market can be fixed directly on the documents and on the patrons' ID cards. The vendor can advise the barcoding procedures and item conversion. The item conversion is the process of entering barcode and item information into the system and linking that information to the appropriate bibliographic record and physical item. The barcodes may be added before or after the system is operational. Most libraries use standard barcode labels such as code 39 or CODABAR. They are available on competitive prices.

(4) Training : The training is required to the staff who handle the automated system. The training is to be coordinated with the Project Manager who is familiar with the library, the system and the techniques for good training and should be conducted in the library environment. The training sessions are to be conducted in small groups and reinforced with hands-on practice. Generally, training is scheduled as functions are needed by the library or as they become available during implementation. In addition to the terminal training, it is necessary that vendor provides operations training to appropriate staff of the library in how to operate all the equipments in the computer room. The computer terminology and the functions of each major system are to be reviewed. The basic database maintenance and maintenance of peripherals are to be covered in detail during the training session. The number of staff to be trained depends on contractual agreement with the vendor. It is advisable that all the permanent staff who will be using the computer system are to be trained apart from detailed training to a limited staff at various levels.

(5) Selecting and Installing the Equipment : The vendor or the Project Manager are the best people to

work with the library coordinator or the Library Automation Committee to design the effective hardware system that meets the libraries' current needs and also anticipated future requirements.

Most hardware systems available in the market are : Data General, Mini Computers, ranging from 16-bit series to 32-bit series and the DECK-PDP series Mini Computers. The vendor from whom the hardware is purchased is appointed to the maintenance services, like remedial, preventive and swap-out. The size of the Central Processing Unit (CPU) necessary for any library depends upon numerous factors including the number of computer terminals, size of the system's database, printers, barcode readers etc. While installing the hardware several points are to be taken note of like computer site, terminal site, construction of floor areas, electrical power supply and environmental controls, data communications, safety measures, security measures, computer stationery, furniture items and consumables etc.

The delay in site preparation is one of the common constraints in the installation of the Library Automated System. Mostly these preparations are carried out by other vendors who have their own schedules and commitments. Therefore, it is very important that the library begins site preparation activities soon after ordering the system. This will enable installation when the hardware arrives.

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Diversification of our Agriculture

Dr. Bal Ram Jakhar, Union Agriculture Minister, delivered the Convocation Address at the annual convocation of Dr. Y.S. Parmar University of Horticulture & Forestry. In his wide ranging address Dr. Jakhar stressed the need to diversify Indian agriculture. He said, "Diversification of our agriculture through technologically feasible and economically viable agricultural enterprise, to attain a more balanced economic development, is vitally important. As a matter of fact diversification seems to be the only answer to overcome the present problems in agriculture development, speed up the pace of rural development through poverty alleviation and employment generation most urgently needed for economic upliftment of rural India". Excerpts

Agriculture in our country at present is at a very crucial juncture. We have achieved green revolution and are in the process of sustaining it to meet the food requirements of the increasing growing population. The agricultural production per unit area is tending to level off and the cost of inputs is becoming prohibitive. Hard labour, high input costs, vagaries of nature and marketing difficulties are rendering agriculture a rather discouraging proposition. A large section of younger generation in the rural area is moving to the adjacent urban areas in search of employment and better quality of life. Monoculture has started telling upon our environment, thus resulting in acute imbalances in the eco-system such as excessive use of ground water leading to poor water use efficiency and lowering of water table, deterioration of soil health, multiplication of pests and diseases, unplanned consumption of energy, non-availability of other protective foods and high value crops and pollution and degradation of eco-system.

Therefore, diversification of our agriculture through technologically feasible and economically viable agricultural enterprise, to attain a more balanced economic development, is vitally important. As a matter of fact diversification seems to be the only answer to overcome the

present problems in agriculture development, speed up the pace of rural development through poverty alleviation and employment generation most urgently needed for economic upliftment of rural India. A large number of small and marginal farmers and agricultural labour are unemployed for a part of the year and "under-employed" over a long period of the year. The scope of providing employment to these rural masses in the secondary and tertiary sectors is very much limited, and it is only the agricultural sector which would employ this vast human resource. The regions experiencing rapid agricultural growth and diversification enable even those sections which do not have access to land, to contribute to national growth. Besides direct tangible benefits, diversification has important intangible and ecological advantages.

Diversification has two broad directions. First, diversification in the cropping system with a view to meeting the five Fs' viz., food (cereals, pulses and oilseeds), fodder, fuel, fibre and fertilizer, while taking care of the soil health and the agri-ecosystem. Secondly, the diversification of agriculture itself by incorporation activities like horticulture, forestry, apiculture, sericulture and mushroom culture, with an eye on employment generation and ecosystem conservation

and improvement. I would like to share with you my views on this second type of diversification. It has been rightly said that the modern technology has made physical access to food possible, but for achieving economic access we will need reorientation of research and development priorities and strategies towards the generation of diversified opportunities for skilled and unskilled employment in rural areas.

India is a vast country endowed with a variety of climates where almost all types of fruits and vegetables can be grown. There is a tremendous scope of increasing not only the productivity which presently is quite low compared to that of the developed countries, but also the area under horticultural crops. The fruits and vegetables occupy an area of 10.1 million hectares which is only 6.73 per cent of the gross cropped area. There is, thus, ample opportunity to increase the area, say upto 10 per cent or even more. I would like to mention here that the Ministry of Agriculture has sought to increase the plan outlay for horticulture from Rs. 33 crore to Rs.250 crore during the Eighth Plan. The fruit production target has been fixed at 34 million tonnes and vegetables at 75 million tonnes from the present 24.8 and 48.7 million tonnes respectively. This is besides the target of 0.325 million tonnes for cashew, 2 million tonnes for spices and 10.846 million tonnes fixed for coconuts. The broad thrust areas would include emphasis on the development of horticulture in the arid zones and spices in the north east. The States have been asked to link horticulture with the *employment guarantee schemes* and *Jawahar Rozgar Yojna*. Special efforts are envisaged to be made to encourage appropriate horticultural crops in tribal areas. This, along with close linkage between the producers and agrifood process-

ing units would ensure better returns to small and marginal farmers for whom these crops are a source of supplemental income. It is imperative to underline the need for developing appropriate post-harvest handling and processing technologies suited to the needs and conditions obtaining in the country to reduce the enormous losses of perishables presently suffered. Otherwise increased production will benefit only the middlemen. The available range of fruit and vegetable products is mainly designed to cater to export, defence and high class clientele and is not suitable for mass consumption on account of several factors. There is, therefore, an urgent need for diversification of the processed fruit and vegetable products. New formulations, therapeutic and nutrition foods, and better packages are the trends for the future, which must merit our attention. I am, therefore, confident that this sector will be a potential employer for not only the specialised and trained manpower but also for the unskilled labour at all levels. The infrastructure will further develop employment opportunities. However, I feel individual producers cannot develop the required post-harvest facilities. They should form cooperatives of their own.

In the North-West Himalayan region several diversification options are feasible. Fruits and off-season vegetables are more rewarding than the low-yielding cereals in these hills. There is also good scope for growing high value exotic vegetables like celery, asparagus, globe artichoke, broccoli, brussels sprouts, parsley which can find an easy market in the fast-developing hotel industry. Similarly, cultivation of rare medicinal plants and high value ornamentals can also be a remunerative proposition. In Himachal Pradesh and adjoining hilly areas of J & K and U.P.

hills, ideal climatic conditions prevail for the production of vegetables and flowers during off-season of their production. The climate in the State is ideal for the seed production of temperate vegetables like cabbage, late cauliflower, beets, carrot, etc. Furthermore, seed production of chicory, sugarbeet and some ornamental plants, and rare medicinal plants are of great significance to the small and marginal growers of the tribal areas. There is a great demand of cut-flowers of gladiolus, chrysanthemum, narcissus and lilies and the prices obtained are highly remunerative. Being labour intensive, vegetable and flower production has great potential for generating employment in the country.

Although some outstanding advances have been made in horticultural research in the country yet we are still to go a long way. I have been visiting different parts of the world and have seen that horticulture has made big strides and still has vast potential for its development. Green House cultivation of horticultural crops under controlled conditions mainly vegetables and ornamental crops has been commercialised and has revolutionised the economy in several developed countries of the world. We are still far behind in this area. Concerted efforts are required to be made to exploit this potential in our country, particularly for production of cut-blooms and vegetables for sophisticated export markets. For this, besides standardisation of Green House technology indigenously, we have to procure and develop right type of cultivars and generate their adequate planting material/seed which would be necessary for area expansion and for quality production of these crops. In Japan as well as other developed and developing countries commercial production of F₁ hybrids has entered into commercial production for catching up

the export markets of ornamental crops and vegetables whereas in our country we have only few F₁ hybrids in vegetable crops most of which are yet to be commercialised for want of their F₁ seeds.

Several diseases and insect-pests problems are still unsolved which are defying chemical control. Resistant varieties are supposed to be the only answer to such diseases and insect-pests. Our research institutions and universities have to put all out efforts in breeding such varieties to economise crop production and stabilise their yield and quality. Special emphasis has to be laid on developing varieties of fruits and vegetables with a long shelf life, high nutritional quality and suitability for processing which will have better scope of export. Our seed industry needs to be strengthened tremendously for production of seed and planting material of improved varieties and F₁ hybrids so that country's dependence of foreign seed imports is reduced and the foreign exchange is saved.

Himachal Pradesh is well known for its horticulture industry with an area of 1.55 lakh hectares with an annual production of 4.60 lakh tonnes. Apple production has made significant strides and is highly labour intensive. A hectare of apple absorbs 300 mandays in comparison to 89 mandays for wheat and maize rotation in a cropping intensity of 169 percent. In areas which are suitable for fruit culture, horticulture offers tremendous scope for increasing employment opportunities in the rural areas. There is enough evidence to show that replacement of food crops by fruit crops can create increased employment of 211 mandays with stone fruits and 146 mandays with almond. With a total area of 1,55,000 ha. and a growth rate of 6 percent, 8,100 ha. are likely to be added every year which will generate

an annual employment to the tune of 19,03,500 mandays. The projections in the other Himalayan States may not be as inspiring but may compare favourably. Fruit nurseries in hilly areas are also potential employment generators. I understand that fruit nurseries at present are raising 16 to 19 lakh plants against the annual requirement of about 25 lakh plants. This involves employment of 2,40,000 mandays at the rate of 3,000 mandays per ha. The projected requirement of plants during the next Five Year Plan will be more than 10 million which has a potential to generate 9,60,000 mandays annually. Similar employment opportunities exist in the fabrication of packing material, transportation and fruit and vegetable processing industry.

Apple is being grown in the undulating and difficult terrains of North-West Himalayas and farflung hilly areas. These regions have saturated with this crop, but easy access to the areas and transportation of the produce to the marketing points is still a very big problem as the producing areas are not properly connected with roads. Therefore, emphasis in such areas needs to be laid on the production of low volume and high value crops.

Before the partition of undivided State of Punjab, the then Punjab Chief Minister, Late Shri Partap Singh Kairon, was advocating the concept of garden colonies. Unfortunately, the noble idea could not be given a proper shape. The time has come when we have to develop horticultural estates in selected areas of the country, particularly in the State of Himachal Pradesh, J & K, Uttar Pradesh, Karnataka, Maharashtra and Tamil Nadu. Uttar Pradesh has taken a lead in developing fruit belts in selected areas of the State and some mango and guava belts have been identified. In these States facilities are being provided to the farmers for promoting production

of these crops. These efforts need to be duplicated by other States, particularly Himachal Pradesh for which Dr. Y.S. Parmar University of Horticulture & Forestry can play a major role in developing the blueprint for such a developmental programme which can be passed on to the State Government for consideration and necessary action.

India has all the requisites to become a leading mushroom producer also. During 1988-89 the production of button mushroom was around 3,500 tonnes. Through organised efforts export of cultivated mushrooms can be raised to over Rs. 400 crores within 5 years and to about Rs. 1000 crores by the 10th year. The world trade of cultivated mushrooms for 1989 was around 3-5 million tonnes valued at \$ 7 billion which is likely to increase to \$ 15 billion in the next five years if the present growth rate continues. If sustained efforts are continued, in a period of about 20 years India could become one of the leading mushroom producers with its share exceeding 10 per cent of the global production.

That the honey is another important production which needs attention. I understand that in some apple growing belts of Himachal Pradesh the orchardists hire honeybee colonies by paying Rs. 25-40 per colony for pollination purposes. The National Agriculture Commission (NAC) has suggested a target of 6 million colonies and the production of 60,000 tonnes of honey by the year 2000 AD. A study on the technical feasibility and economic viability has revealed that one skilled person alone can manage 100 bee colonies, which can yield an income of about Rs. 20,000 per year. To achieve the target fixed by the NAC, every year 4.5 lakh colonies have to be added to the existing stock which would create additional employment throughout the year for 45,000 persons every year. In order

that bee-keeping is adopted at a large scale, it would be necessary to make certain changes in land-use pattern to make flowers available to the bees for a major part of the year. In this context agro-forestry, social forestry and wasteland afforestation/reforestation can play a vital role provided the emphasis is on multiculture and sources of bee forage.

Another important area which requires attention is the diversification by integrating forest trees with the annual crops through various agroforestry systems and by practising social forestry on revenue wastelands, degraded forests in the vicinity of habitation, tree planting on and around agricultural fields, dwelling compounds and on private marginal lands. The area available for social forestry is estimated to be around 95 million ha. The labour requirements for digging pits, nursery activities, transportation, planting, soil-working and ploughing, protecting and harvesting wood, works out to be 88 mandays per ha. per annum based on an average of 9-year cycle of a species. Social forestry on wasteland, ravines and salt affected lands and degraded forests has the potential to offer full time employment to nearly seven million unskilled persons. The Government of Himachal Pradesh has taken a very bold step in formulating and implementing '*Van Lagao Roji Kamao Yojana*' under which it is planned to adopt 75,000 families over a period of 10 years and allot them 2 ha. area each for planting social forestry trees. I feel this is an excellent attempt at the conservation of environment and creation of self-employment opportunities. I am sure, there is scope for absorbing trained manpower like horticulture and forestry graduates in supervision, management, forest and agro-based industries, banks, nursery raising activities, etc.

Life-oriented Education System

The Tamil Nadu Education Minister Mr. R.M. Veerappan, called upon educational planners to think of a life oriented education system for channeling the talents of youth. He was inaugurating a three-day national conference on "Area Intensive Education Project (AIEP) for Human Resource Development". He said development programmes and welfare schemes in Tamil Nadu had an effective networking system to help the backward and poorer sections. The participants should make skill development possible even from early childhood through this project, he said. Also, educationists should devise a useful education system with a vocational component.

The AIEP was tuned to achieving the broad goals of the National Policy on Education, especially universalisation of elementary education, he said. Relevant, need based and local specific programmes should stress the importance of the mother tongue in teaching. The development centres in the villages and the multi-purpose resource centre in Krishnagiri block in the State were functioning very well, he added.

Dr. K. Gopalan, Director, National Council of Educational Research and Training (NCERT), who presided, characterised AIEP as perhaps the most comprehensive innovative project undertaken so far. The project had been put in action in six blocks of Maharashtra, Mizoram, Orissa, Tamil Nadu, Uttar Pradesh and Dadra and Nagar Haveli covering 542 villages. Since the State Governments had not acted with adequate speed and

efficiency the project could not get started earlier, he added.

In his keynote address, Mr Tad Palac, Chief, Education Section, UNICEF, New Delhi, said his organisation was committed to the goal of education for all and it recognised that the vital link was primary education. This was the "cutting edge" of any holistic approach to the problem, he added.

ILA Annual Conference

The Tamil Nadu Governor, Mr. Bhishma Narain Singh, called upon librarians to help in the cause of promoting an informed society and motivating the people in setting up a library network so that the needs of students, members of the public and academicians could be taken care of. He was inaugurating the 37th annual conference of the Indian Library Association at the Indian Institute of Technology, Madras, recently. Mr. Singh stressed the need for upgrading library facilities and information systems. "The availability of information supports all decision-making processes and accelerates the pace of national development. An informed citizen is an asset to a democratic system of government and the proper utilisation of information can improve the quality of citizens," he said.

Mr. Singh pointed out that the importance of library in school education was not always appreciated and some of the best schools were functioning as coaching classes where students got groomed for securing high marks in

public examinations. This applied in a greater measure to colleges and universities, he added, quoting Thomas Carlyle that "the true university of our days is a collection of books". Libraries could serve also in the spread of literacy and help people to make creative use of their leisure.

Making a plea for the setting up of free public libraries in rural areas, Mr. Singh said that these could serve as information centres and link up with the primary schools in the villages. He wanted the support of philanthropists and voluntary organisations for building up the library movement. At the outset, the Governor referred to the work of Dr. S.R.Ranganathan, father of library movement in the country, who had won international recognition.

In his keynote speech, the Vice-Chancellor of Madras University, Dr. S. Sathik, said many universities still lacked good libraries fashioned on modern lines. The Madras University could spend only about Rs. 4 lakhs out of the Rs. 16 lakhs sanctioned by the UGC for modernisation. He wanted adequate manpower trained in library management and a linkage with the National Literacy Mission. He urged the delegates to examine the implications of trans-border data flow.

The President of the Indian Library Association (ILA), Mr. S.C. Biswas, in his address urged the conference to focus its attention on some major issues like unplanned growth of library education and training institutions, review of the curriculum and syllabi, accreditation of professional degrees, information technology and packaging, handling of non-book material as

vital information sources, and preservation of precious manuscripts and rare printed material.

Access to information was vital and the IIT, Madras, had revamped its library system, said Prof C. Aravamudan, Director-in-charge of the institute.

Over 400 delegates attended the four-day conference sponsored by the ILA, the Indian National Scientific Documentation Centre, Madras University, IIT, Madras, and the Madras Library Association. The conference discussed several crucial themes like formulating a national policy on library and information systems, security and privacy in network environment, and development of the information industry.

Copter Service for Medical College

A helicopter ambulance service is to be introduced by the Sri Ramachandra Medical College and Research Institute, Porur in Madras. This was revealed by Dr. C.N. Deivanayagam, Dean of the Institute. He said that the institute which had an expanse of 176 acres would provide for a helipad. The service was to cater for emergencies. The need for the facility was felt with two airports, important highways and a car racing track nearby.

The institution, run by the Government, would throw open its facilities to private practitioners for diagnosis, analysis and reference.

The government had accepted the recommendations of the college and identified thrust areas for development – radiology – imaging science, hepatic pancreatic biliary surgery and acute liver care, molecular biology including biotechnology and family medicine. The focus would be on these areas in the next four or five years, by which

time, it was hoped that the college would attain deemed university status.

The National Board of Examinations (NBE) had drawn up a post-graduate syllabus for the family medicine course. Under the concept of family medicine, a general practitioner is given exposure to specialities like obstetrics, trauma care and surgery to attend to emergencies. The college would adopt the syllabus.

The NBE had permitted the institute to start PG diploma courses in paediatrics, general medicine, general surgery, obstetrics and gynaecology and anaesthesiology with two students each.

The institute also proposes to set up a "breast" milk bank, a laboratory to produce genetic material and vaccines and acquisition of PET and wholebody scans.

Workshop on Book Design

A five-day workshop on 'book design' jointly organised by the National Council of Educational Research and Training (NCERT), National Book Trust (NBT) and National Institute of Design (NID) was recently held in New Delhi. The objective of the workshop was to explore on how best to use the concept of design to make books more attractive and keep the price at an affordable level.

The NBT chairman Mr. Anand Sarup, who inaugurated the workshop, lamented the lack of professional book designers and editors in publishing industry. He said several countries in the South region were in the same boat. The concept of book design, he continued, was bound to change in the coming years with the onset of new technologies. The NBT chairman said that a well-designed book need not necessarily be expensive nor need it be splashing lavish colours. The challenge

before the workshop would be to use the design concept to make every book valuable and worthwhile object to hold, look through and read.

Prof. P.N. Dave, Consultant to the NCERT, said that considering the target to attain the goal of "education for all" it was necessary to cut down on costs and make books attractive enough for the children and adults to read. He said that books meant for this purpose should not communicate merely through words. They should bring into play the concept of "non-verbal communication" too. Use of the latest technology should help in achieving these objectives, Prof. Dave added.

According to Mr. C.N.Rao, Head of NCERT's Publication Department, the workshop was organised with the help of professional designers, Mr. Mahendra Patel of NID, Mr. Dipen Mitra and Mr. Satyasewak Mukerji. During the workshop the participants came out with designs for some manuscripts involving three stages of book design viz. editorial, visual and technical planning. Mr. Rao said all these were equally important, since failure at any one of these stages was enough to ruin the book. An UNDP expert Ms. Helena Perheentupa working presently with the NID and closely associated with the workshop, also spoke on the occasion.

Haryana to Set Up Higher Education Council

A Council for Higher Education is likely to be set up in Haryana to coordinate the working of three universities – the Haryana Agricultural University (HAU), Hisar; Maharshi Dayanand University (MDU), Rohtak, and Kurukshetra University – as also the ordinary and professional colleges affiliated to them.

The universities will appoint Pro-Vice-Chancellors, enabling Vice-Chancellors to devote more time to academics and leaving routine administrative work to them. The Pro-Vice-Chancellors will invariably be noted educationists with sufficient administrative experience.

Mr. Bhajan Lal, State Chief Minister, said that a Bill on setting up a Council for Higher Education would be presented in the forthcoming session of the State Assembly. "It will be a statutory body vested with vast powers," he said.

BHU Honours Koirala

Nepalese Prime Minister Mr. Girija Prasad Koirala called for greater cooperation and understanding among South Asian nations for all round development of the region. He was addressing a gathering at Banaras Hindu University after receiving the LLD (Honoris Causa) degree. He said concerted efforts must be made to solve national, regional and global problems. He appealed to the people not to get entangled in minor technicalities in the quest for the highest goals of life.

Thanking the university for conferring the LLD degree on him, Mr Koirala said by doing so BHU had not honoured him but also the common people, labourers and farmers of Nepal.

The honour was a tribute to the faith in democracy, humanistic values and the history of struggle of the Nepali Congress, he added.

"By conferring this degree on me, the Banaras Hindu University has honoured the success that we, the people of Nepal, have achieved in restoring multi-party democracy after a long history of struggle in Nepal and that history is linked in various ways with Banaras Hindu University, Mr Koirala said.

Since time immemorial, the people of Nepal had religious, cultural, literary, and political relations with the holy city of Varanasi, he added.

National Meet on Folklore

A three-day conference on folklore was recently held in Hyderabad. The conference was jointly organised by the Folk Arts Department of Telugu University and the Folklore Society of South Indian Languages (FOSSILS). Addressing the Conference Dr. C.Narayana Reddy, Vice-Chancellor of Telugu University, said that the dire need of the hour was to make present day youth aware of common cultural traits among the people of India, which goes beyond caste, region and religion. The Vice-Chancellor stated that the University would undertake and encourage inter-lingual folklore works and asked FOSSILS to help cultivate academic interest among folklorists.

Prof B.Rama Raju, former head of the Telugu Department of Osmania University, who inaugurated the conference, observed that folklore was a common bond between different regions of the country. The greatest misfortune among Indians, he said, was not knowing Indian languages while they were well versed with German and Scandinavian languages. He stressed the need to produce and disseminate works on folk art to different parts of the nation. Storing them in the archives would not serve the purpose, he added.

One hundred delegates from all over India participated in the conference.

Literacy Campaign by Annamalai University

During the summer vacations about 2,000 students of the Annamalai University had been involved in eradication of illiteracy

covering the villages in and around the University. In this process they were able to impart literacy to about 30,000 illiterates. Prof. T.C.Mohan, Vice-Chancellor of the University said the University had been able to achieve a measure of success and therefore wanted to continue the literacy effort by converting it into a Total Literacy Campaign. The State Resource Centre for Non-Formal Education, Tamil Nadu would be assisting them in this endeavour.

The University is running a Total Literacy Campaign from September to December 1991 for continuation, stabilisation and consolidation of the gains already achieved in the mass literacy endeavour undertaken by the students of this university with the help of the staff.

Rs. 50 lakh for TN Varsities

The Tamil Nadu State Government has released Rs. 50 lakhs to three universities in the State to strengthen their academic activities. Rs. 20 lakhs has been given to Madurai-Kamaraj University for the construction of MBA Faculty buildings and hostel, the Alagappa University, Karaikudi, has received Rs. 12.50 lakhs for the construction of academic block, campus development and purchase of health centre equipment. A sum of Rs. 17.50 lakhs has been released to Tamil University, Thanjavur, for the construction of buildings for the manuscript, art faculty and for the students' hostel.

Women & Economic Development

The Women's Studies Research Centre of Gauhati University, in collaboration with Economics Department recently organised a seminar on "Women and Economic Development". Dr. Renu Debi, Director of the seminar in her open-

ing remarks explained various projects and activities undertaken by the Centre on inter-disciplinary basis. The seminar was inaugurated by Dr. Nirmal Choudhary, Vice-Chancellor, Gauhati University while Mrs Nilima Dutta presided.

The seminar recommended the modernization of Cottage industries including silk-wearing industry, improving working conditions of

women in Private and Public enterprizes including tea-gardens, supply of supporting services to working mothers and better provision for education and training for women and creation of more avenues for the employment of women.

Over sixty delegates participated in the seminar.

News from Agricultural Universities

Krishi Mela - 1991

In a recently organised Krishi Mela by the University of Agricultural Sciences, Dharwad, improved groundnut varieties DH- 3-30, DH-8, S-206, GL-24 and KRG-1 developed by the Oil Seed Development Project were displayed. The farmers were given technical guidance on the hybrid cotton varieties developed and released by UAS, Dharwad viz., Jayalaxmi, Varalaxmi, Jayashakthi (a new variety-DDH-2) and disease-resistance varieties - Abhadita and Arunaba. Information was also provided to the farmers on different varieties of wheat, maize, jowar and other crops.

A demonstration was conducted to educate the farmers on the new method of controlling Army worm, a deadly pest on sorghum. Awareness was created among the farmers regarding control of Heleothis.

Improved agricultural implements like multipurpose plough,

cotton dibbling machine, Tungabhadra drill etc. were exhibited and demonstrated.

L-15, a high yielding and blight resistant variety of Tomato Composite-2, a brinjal variety and DHS-1, and DHS-2, two sapota varieties giving high yield with more sucrose content caught the attention of farmers.

Information was provided on Dairy, Poultry, Inland Fisheries, Sericulture, Forestry, Apiculture etc. Exhibition was arranged for farm women on simple and cheap equipment and preparation of bakery products.

Arrangements were made for farmers to have consultation with scientists where farmers got their problems solved.

A general knowledge quiz on agriculture was conducted for farmers and prizes were given away to the winners.

News from UGC

Countrywide Classroom Programme

Between 23rd December to 31st December 1991 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The

programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The Programme is available on the TV Network throughout the country.

1st Transmission
1.00 p.m. to 2.00 p.m.

23.12.91

"Remote Sensing-XVI: Applications of Remote Sensing-I"

"Importance of Foreign Exchange"

"Harvest"

24.12.91

"Ways of Thinking-SEP-VII: Everybody Says I"

"The Distribution of Molecular Speed"

"So you are a Vegetarian?"

25.12.91

No Telecast

26.12.91

"Electrical Power"

"Deemak"

"Why not in your city?"

27.12.91

"Understanding the stars"

"Electoral Politics: An Overview"

"Defence Mechanisms"

28.12.91

"Library and Automation"

"Scenic America" The Denali Wilderness"

"Weekly Programme"

29.12.91

No Telecast

30.12.91

"Remote Sensing-XVII: Applications of Remote Sensing-II"

Banks in the welfare of students"

"Man and Land"

31.12.91

"Chinese Hands"

"The Pursuit"

Und Transmission
4.00 p.m. to 5.00 p.m.

23.12.91

"Remote Sensing-XIII: Orbits for Earth Observations-II"

"Bank Finance"

"Rajasthan Agriculture on Move"

"Food Grains"

24.12.91

"Ways of Thinking-I: Mind Matters"

"Organic Techniques-I:

"Know More About Your Skin"

25.12.91

No Telecast

26.12.91

"Latched Registers Data Communication Systems"

"Glimpses of Medieval Delhi-I"

"The Poetry of Jayante Mahapatra"

27.12.91

"Vedic Mathematics-III"

"Gender Bias in Medical Technology-I"

"Ethnicity and Democracy"

28.12.91

"Short-Films – A German View"

"Handicrafts of Andhra Pradesh Artistic Metal Ware"

"Introduction to Scuba Diving"

29.12.91

No Telecast

30.12.91

"Remote Sensing-XIV: Image Processing and Data Products"

"Devaluation of Rupee"

31.12.91

"Chinese Hands"

"The Pursuit"

Mid-Term Project Appraisal

The University Grants Commission (UGC) has initiated a programme of mid-term evaluation of major research projects approved and financed by it and under operation for at least past one year in various disciplines in social sciences, humanities and science in different universities and colleges. A sort of educational auditing, the exercise is intended to ensure quality and relevance of research studies.

In the first phase, two appraisal workshops were organised at the University of Madras, and the School of Marine Science, Cochin University of Science and Technology in months of September, 1991

and October, 1991 respectively in the areas of Botany, Zoology and Ecology, Aquatic Biology etc. After deliberations at these workshops, 19 projects were recommended for discontinuation because of their 'poor' quality.

The Commission provides assistance to teachers, both in service as well as superannuated (before 65 years of age) in universities and colleges to undertake well defined time-bound research projects with a view to pursue and promote a culture of research in the University system and enable the teachers to keep abreast of the latest developments in their subject areas. At present about 1000 such major research projects are being supported by the Commission.

News from Abroad

Teacher Training in France

Teacher Training in France has been transferred to university institutes throughout the country and, for the third year running, a major recruitment drive is underway to bring more students into a teaching career.

Last year, three education authorities switched from the old teacher-training colleges to university institutes in a pilot run of the system.

The changes introduced, include the training of both primary and secondary school teachers within the same framework, with 10 per cent of course work in common and a shared entrance level set at the equivalent of a B.A. degree.

The courses place more emphasis on early practical experience in the classroom and on teaching theory, with educational research also based in the institutes.

The changeover has met with a number of practical problems as well as some resistance. Some institutes have yet to finalise their course content, while others must

solve problems linked to changes in geographical location.

A major incentive for students in the new system is the special grants available from third year of undergraduate studies onwards. Just under 6,000 allowances of £ 5,000 a year are given to third year students committing themselves to entering a teacher training institute. The allowance goes up to £ 7,000 in the first year of training, while second year students receive a trainee-teacher salary.

Last year, when the allowances were introduced, the number of students sitting in the secondary school teaching certificate examinations went up by 8 percent.

This year, the number of new posts in secondary schools which will be opened to successful candidates, is to go up by 29 percent on last year to 21,000.

French schools need more teachers as pupils increasingly stay on after the minimum school leaving age.

In 1988, the education ministry calculated that its aim of bringing 80 percent of children up to bacca laureat level by the year 2000 would require 300,000 new teachers.

Students are now being called on to consider a teaching career through a major ministry campaign. But however good the response is, France does not have enough graduates in all subjects to cover teaching needs in coming years.

Facility for Zero Gravity Experiments

Scientists in Japan have a major new facility for conducting experiments in zero gravity conditions: and abandoned coalmine at Kamisunagawa on the northern island of Hokkaido. At a cost of £ 22 million the redundant pit has been converted into a world class Underground Zero Gravity Experiment Centre.

Zero gravity conditions are created by dropping a five-ton capsule down the pit's 710 metre-deep shaft. During the ten seconds it takes the car-size capsule to drop from the top of the shaft to the bottom, objects inside are rendered weightless. A 200-metre compressed air braking system cushions the vacuum-sealed capsule at the end of its fall.

The high demand for facilities in which to conduct zero-gravity experiments has left the new centre fully booked for the next 12 months. Officials at the laboratory, financed by a combination of government and private funds, say it is particularly useful for biological studies and for the research and development of new materials.

The conversion of a coalpit is not the only example of redundant Japanese industrial premises being converted into high-tech amenities. Nippon Steel's disused Yahata Works have been transformed into "Space World", a multi-billion

pound theme park which seeks to arouse young people's interest in outer space.

Epidemiology and Control of Infectious Diseases

An Intensive Short Course on Epidemiology and Control of Infectious Diseases will be organised by the Department of Biology with the Continuing Education Centre at Imperial College, University of London from 31 August to 18 September 1992. The course has been developed by a leading research team to help satisfy the growing demand for a thorough but short update in the essential elements and practically relevant aspects of this important field. In particular, it seeks:

- (i) To teach the concepts and underlying principles of infection dynamics within human and animal populations, and familiarise participants with recent advances in our understanding of the population processes of important infectious diseases.
- (ii) To illustrate how modern quantitative methods contribute to the development of epidemiological theory and the collection and interpretation of empirical data from a number of relevant disciplines.
- (iii) To provide authoritative instruction in the use of key quantitative methods along lines that will be readily assimilated by participants from different disciplinary and occupational backgrounds.
- (iv) To demonstrate the use of quantitative techniques in the design, implementation and evaluation of practical intervention strategies for a range of infections and diseases.
- (v) To indicate lines of future development in the epidemiology of infectious disease, and their implications for practitioners from both in-

dustrialised and developing countries.

The Course Content will comprise an integrated combination of lectures, practicals, workshops, study-groups and seminars. These will take participants from the fundamentals of infectious disease population dynamics, through quantitative methods for collecting and analysing data and computer simulation of infection patterns in host populations, to the application of quantitative techniques to key problems of infection and disease control. The topics covered will include: (i) Infectious Disease Population Dynamics – Basic concepts and principles; Application of principles and theory. (ii) Quantitative methods – Data collection and analysis; Mathematical modelling; Computing tools. (iii) Control and Control Techniques – Theory of infection control; Practice of infection control.

The course has been designed to cater for the needs of:

- (i) Medical, veterinary and biological researchers working in industry, universities and other research institutions who wish to enhance their studies by improving their grasp of quantitative approaches to epidemiology.
- (ii) Those, including policy makers, working in public health organisations, disease control agencies and field situations, who seek an understanding of leading-edge developments in the epidemiology and control of infectious diseases.
- (iii) Researchers in related fields, such as infectious disease immunology, who would like to improve their ability to interpret epidemiological data.
- (iv) Teachers of epidemiology who wish to incorporate these innovative techniques, and methods of presenting quan-

titative material, into existing or new training programmes.

Participants will normally have a university or equivalent education involving an element of quantitative analysis, and/or experience which has encouraged them to recognise the potential benefit of a working knowledge of modern quantitative methods.

Participants do not need a sophisticated knowledge of statistics or mathematics to undertake the course and benefit substantially from it. The key quantitative concepts and techniques employed by leading epidemiological researchers will be presented step-by-step in a readily comprehensible and utilisable manner.

Further details may be had from: Dr Graham Medley, West Wing, Department of Biology, Imperial College, Prince Consort Road, London SW7 2BB, United Kingdom.

Admission to French Universities

Indian nationals seeking admission into French universities at the undergraduate level (first cycle), must undergo the formalities of a pre-inscription (provisional enrolment). Pre-inscription forms are available from 1st December 1991 to 15th January 1992 at the C.E.D.U.S.T., French Centre for University, Scientific and Technical Documentation, Embassy of France, 2, Aurangzeb Road, New Delhi-110011.

Candidates seeking admission into the first cycle will have to undergo a French language test on Wednesday 19th February 1992. For candidates from Delhi, this test will be held at the C.E.D.U.S.T. (address given above). For those outside Delhi, it will be held at the *Alliance Francaise* nearest to their place of residence.

Candidates residing in Delhi are requested to collect the forms from C.E.D.U.S.T., while those from outside Delhi are required to make a written request at this Office. The pre-inscription forms will be mailed to them by Registered Post.

The French Centre for University Scientific & Technical Documentation in New Delhi has further notified the following points for information of all concerned.

- (1) For admission into the first cycle of a French university, it is preferable for the candidate to have a Bachelor's Degree. However a candidate with a (10 + 2) may appear for the entrance examination. The university to which he/she applies will decide upon the equivalence to be granted. Any other examination which makes a candidate eligible for university studies in his/her own country is also accepted for the purpose of enrolment.
- (2) This procedure does not apply for Engineering studies. Those interested in enrolling themselves for Engineering are required to write directly to the French institution of their choice.
- (3) No scholarships are offered at the undergraduate level of studies. Candidates have to meet their own expenses (tuition fee, living expenses, travel, etc.) in foreign currency (roughly 40,000 French Francs per year).
- (4) This procedure is not applicable to candidates with a French "Baccalaureat".

The Centre has also announced admission to a Two-year Masters Programme in Management in five Schools of Management in France i.e. HEC PARIS, ESSEC PARIS, ESCP PARIS, ESC LYON, CERAM NICE.

This Master's programme is designed to train future senior managers for European and international companies. Students are expected to acquire a holistic approach to business management.

Applicants must have successfully completed a Bachelor's degree or its equivalent, obtained after at least 3 years of post-secondary study outside France.

Applications forms (available from CIAM — French Graduate Management Admissions Board), together with required documents must be returned to CIAM not later than 1st February 1992. The Documents to be submitted would be as under :

- (i) A document testifying to the applicant's identity.
- (ii) A copy of the degrees obtained (or a certificate of attendance).
- (iii) The applicant's school and college record.
- (iv) GMAT and TOEFL scores (These tests are required for the Management Programme "HEC-International Track" in English).
- (v) Two self-addressed envelopes.
- (vi) Two photographs (full-face) with name of applicant on the back (one of them stapled to the application form).
- (vii) Registration fee of FF 300 for students of Indian nationality (Payment should be made by cheque to be enclosed with application documents. Please indicate method of payment used).
- (viii) Two letters of recommendation to be sent directly to CIAM - French Graduate Management Admissions Board :
 - (a) one regarding the applicant's academic ability
 - (b) the other with reference to the applicant's potential for a career in management or to his/her professional experience.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
August 26-28, 1992	Second International ISKO Conference on Cognitive Paradigms in Knowledge Organisation	To provide a forum for scholars working in the field of knowledge organisation	Madras Library Association in collaboration with Sarada Ranganathan Endowment for Library Science and University of Madras	Mr. S. N. Kumar Conference Secretariat, 5, Sivaganga Road, Madras-600 034
October 26-31 1992	Third IAU Mid-Term Conference to be held at Alexandria, Egypt	Theme: Adaptation of University Management Structures and Strategies for New Requirement	International Association of Universities (IAU), France	Dr Franz Eberhard, Secretary General, International Association of Universities, 1, rue Miollis, 75732 Paris Cedex 15 France
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair – 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

RECENT RELEASES

III. Indian Science: Era of Stabilisation

— Nigam, J.K.

This book is a compilation of lectures by eminent Indian and foreign scientists on the Founder Memorial Day of the Shriram Institute for Industrial Research. Two factors make these lectures distinctive: (a) It is the first of such lecture series in the country in the area of Science & Technology (b) covers the period from the mid-sixties through the seventies and eighties – the era of stabilisation of Indian Science.

Pages 416, Price Rs. 450.00

Science and Technologies in the States and Union Territories

— Lavakare, P. J.

This volume presents an informative report that will ensure the spreading of Science and Technology at the grassroot levels of the country. It outlines the efforts and objectives of the Department of S&T, Government of India, for planning and co-ordinating Science and Technology activities in States and Union Territories.

Pages 640, Price Rs. 450.00

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AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in the bibliography. Such universities as are not sending us regular information in respect of doctoral theses accepted and research scholars enrolled are welcome to make use of these columns.

The library also receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly the column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during December, 1991.

EDUCATIONAL PHILOSOPHY

Alexander, Patricia A and others. Coming to terms: How researchers in learning and literacy talk about knowledge. *Rev of Ednl Research* 61(3), 1991, 315-43.

Margetson, Don. Is there a future for problem-based education? *Hr Edn Rev* 23(2), 1991, 33-47.

Peverly, Stephen T. Problems with the knowledge-based explanation of memory and development. *Rev of Ednl Research* 61(1), 1991, 71-93.

EDUCATIONAL PSYCHOLOGY

Blix, Arlene Gray and Lee, Jerry W. Occupational stress among university administrators. *Research in Hr Edn* 32(3), 1991, 289-302.

Christie, Nancy G and Dinham, Sarah M. Institutional and external influences on social integration in the freshman year. *J Hr Edn* 62(4), 1991, 412-36.

Garito, Maria Amata. Artificial intelligence in education: Evolution of the teaching-learning relationship. *British J Ednl Tech* 22(1), 1991, 41-7.

Grosset, Jane M. Patterns of integration commitment, and student characteristics and retention among younger and older students. *Research in Hr Edn* 32(2), 1991, 159-78.

Koeske, Gary F and Koeske, Randi Daimon. Student "burnout" as a mediator of the stress-outcome relationship. *Research in Hr Edn* 32(4), 1991, 415-31.

Lundeberg, Mary A and Fox, Paul W. Do laboratory findings on test expectancy generalize to classroom outcomes? *Rev of Ednl Research* 61(1), 1991, 94-106.

Mallette, Bruce I and Cabrera, Alberto F. Determinants of withdrawal behavior: An exploratory study. *Research in Hr Edn* 32(2), 1991, 179-94.

Matthews, Doris B. Effects of learning style on grades of first-year college students. *Research in Hr Edn* 32(3), 1991, 253-68.

Swain, Ronny. On the teaching and evaluation of experiential learning in a conventional university setting. *British J Ednl Tech* 22(1), 1991, 4-11.

EDUCATIONAL SOCIOLOGY

Ewert, Gerry D. Habermas and education: A comprehensive overview of the influence of Habermas in educational literature. *Rev of Ednl Research* 61(3), 1991, 345-78.

Wentzel, Kathryn R. Social competence at school: Relation between social responsibility and academic achievement. *Rev of Ednl Research* 61(1), 1991, 1-24.

WOMEN'S STUDIES

Stoecker, Judith I. and Pascarella, Ernest T. Women's colleges and women's career attainments revisited. *J Hr Edn* 62(4), 1991, 394-411.

EDUCATIONAL ADMINISTRATION

Anasari, M M and Sharma, T C. Industry and universities in India: Is the collaborative effort succeeding? *Industry & Hr Edn* 5(3), 1991, 143-54.

Blandford, Ann. Computer support for the development of decision-making skills. *British J Ednl Tech* 22(1), 1991, 48-59.

Evans, Norman. Learning from experience: Collaboration between business, industry and higher education. *Industry & Hr Edn* 5(3), 1991, 155-8.

Gillis, Amanda J and others. Management of technology: An emergent discipline? *Industry & Hr Edn* 5(3), 1991, 179-85.

Handscombe, Robert D. Industrial liaison officers: Measuring performance. *Industry & Hr Edn* 5(3), 1991, 175-8.

Hardy, Cynthia. Configuration and strategy making in universities: Broadening the scope. *J Hr Edn* 62(4), 1991, 363-93.

TEACHERS & TEACHING

Blackburn, Robert T and others. Faculty at work: Focus on research, scholarship and service. *Research in Hr Edn* 32(4), 1991, 385-413.

_____ Faculty at work: Focus on teaching. *Research in Hr Edn* 32(4), 1991, 363-83.

Tosti-Vasey, Joanne L and Willis, Sherry L. Professional currency among midcareer college faculty: Family and work factors. *Research in Hr Edn* 32(2), 1991, 123-39.

EDUCATIONAL RESEARCH

Baird, Leonard L. Publication productivity in doctoral research departments: Interdisciplinary and intradisciplinary factors. *Research in Hr Edn* 32(3), 1991, 303-18.

Gillingham, Lisa and others. Determinants of progress to the doctoral degree. *Research in Hr Edn* 32(4), 1991, 449-68.

EDUCATIONAL TECHNOLOGY

Spencer, Ken. Modes, media and methods: The search for educational effectiveness. *British J Ednl Tech* 22(1), 1991, 12-22.

EDUCATIONAL EVALUATION

Bridgeman, Brent. Essays and multiple-choice tests as predictors

of college freshman GPA. *Research in Hr Edn* 32(3), 1991, 319-32.

Gregory, K J. Assessing departmental academic performance: A model for a UK university. *Hr Edn Rev* 23(2), 1991, 48-60.

Kremer, John. Identifying faculty types using peer ratings of teaching, research, and service. *Research in Hr Edn* 32(4), 1991, 351-61.

Nimmer, James G and Stone, Eugene F. Effects of grading practices and time of rating on student ratings of faculty performance and student learning. *Research in Hr Edn* 32(2), 1991, 195-215.

ECONOMICS OF EDUCATION

Friedler, Yael and Shabo, Amnon. Approach to cost-effective courseware development. *British J Ednl Tech* 22(2) 1991, 129-38

Lindsey, Duncan. Building a great public university: The role of funding at British and American universities. *Research in Hr Edn* 32(2), 1991, 217-44.

SCIENCE EDUCATION

Walberg, Herbert J. Improving school science in advanced and developing countries. *Rev of Ednl Research* 61(1), 1991, 25-69.

VOCATIONAL EDUCATION

Braddick, W A G. European management education: Internationalization and harmonization. *Industry & Hr Edn* 5(3), 1991, 138-42.

ADULT EDUCATION

Harnier, Louis von. Continuing HE and industry in Europe: A comparison between France and Switzerland. *Industry & Hr Edn* 5(3), 1991, 159-64.

DISTANCE EDUCATION

Kember, David and others. Towards a causal model of student progress in distance education: Research in Hong Kong. *American J Distance Edn* 5(2), 1991, 3-15.

Wei, Renfang. China's network of radio and television universities. *American J Distance Edn* 5(2), 1991, 59-64.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Peretomode, Victor F. Proposal for the establishment of a university centre for effective instruction in Nigerian universities. *Progress of Edn* 56(3), 1991, 60-4.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

BIOLOGICAL SCIENCES

Environmental Sciences

1. Jha, Raj Kumar. Studies of pollen morphology in relation to air-borne bio-pollutants. Magadh.

Biology

1. Paramananda Das. Genetic response to toxicity in *Ectoparasitiscus* Bloch and *Ectoparasitiscus maculatus* Bloch. CUST. Dr George John, Central Marine Fisheries Research Institute, Kochi.

Biochemistry

1. Chaudhry Anser Azim. Malarial parasite induced structural alterations in membrane proteins of the infected red cells. AMU. Dr Masood Ahmad, Lecturer, Department of Biochemistry, Aligarh Muslim University, Aligarh.

2. Chitrakleha, K T. Studies on the metabolic alterations in myocardial damage mediated by beta adrenergic stimulation: A comparison with ischaemic heart disease. Madras

3. Huneza Hussain. Cellular and metabolic target for antifilarial chemotherapy. AMU. Prof A M Siddiqi, Head, Department of Biochemistry, Aligarh Muslim University, Aligarh

4. Khan, Luqman Ahmad. Studies on energy transducing en-

zymes of muscles. Jamia. Prof M Amin, Department of Biosciences, Jamia Millia Islamia, New Delhi and Dr Faizan Ahmad, Department of Chemistry, Jamia Millia Islamia, New Delhi.

5. Naidu, A. Studies on beryllium toxicity: Effects on fungal and plant metabolism. Osmania.

6. Ravichandran, V. Tissue lipid peroxidation in vitamin B6 deficiency in relation to kidney stone formation. Madras.

7. Swaminathan, K Aruna. Plant products as protective agents against cancer. Madras.

Microbiology

1. Lakshmi Narsimharao, Yogeshwarrao. Microbiology of toxic waste treatment with special reference to waste water from coal carbonization industries. Nagpur. Dr P Kumaran, Scientist, National Environmental Engineering Research Institute, Nagpur.

2. Patel, Vikram Bhagawatiprasad. Some studies on biometanation of water hyacinth-cattle dung. Patel. Dr Datta Madamwar, Reader, Department of Biosciences, Sardar Patel University, Vallabh Vidyanagar.

3. Radha, S. A study into the microbial ecology of water profile and surficial sediments of Hussainsagar lake and impact of abiotic factors on metal toxicity to predominant anaerobic bacterium, *Desulfo vibrio*. Osmania

Botany

1. Bradu, Bansi Lal. **Genetical studies of various yield characters of *Cloctimum*, *Ocimum gratissimum* L in relation to eugenol and other chemical constituents.** Jammu. Dr S N Sobti.
2. Dane, N S. **Studies on genetic variability, heterosis and combining ability in radish, *Raphanus sativus* L under natural conditions of U P hill.** Kumaun. Dr S D Lal.
3. Deka, Suresh. **Ecology of root nodule bacteria of *Phaseolus aureus* Roxb with reference to certain carrier materials.** Gauhati. Dr C K Baruah, Reader, Department of Botany, Gauhati University, Guwahati.
4. Farzana Jabeen. **Leaf architecture in Malvales.** Osmania.
5. Kodanda Ram, P. **Physiological and biochemical studies in sunflower as influenced by phosphorus-iron interactions.** Osmania.
6. Kopparthi, Venkata Raghavendra Rao. **Ecological studies on Gir Forest with emphasis on litter production and decomposition.** Bhavnagar. Dr B R Pandit, Reader, Department of Life Sciences, University, Bhavnagar.
7. Maldhure, Bharat Bapurao. **Cytogenetic studies in *Vigna mungo* (L) Hepper.** Nagpur. Dr J L Tarar, Department of Botany, Institute of Science, Nagpur.
8. Mathur, Mukul. **Post-transcriptional regulation of poly (A) polymerase and S-adenosylmethionine synthetase from their stored mRNAs in plant cells: Enzyme purification, subunit structure and kinetic properties.** Delhi.
9. Moses, Arun Salick. **Taxonomy and biology of foliicolous hyphomycetes with special reference to some pseudocercosporae.** Gorakhpur. Dr Kamal and Dr A K Srivastav.
10. Narang, Vibha. **Somatic embryogenesis in the bamboo, *Dendrocalamus strictus*: Induction and development of embryoids and plantlet formation.** Delhi.
11. Oza, Renu Anantrai. **Taxonomical and ecological studies of the flora of and around Bhavnagar.** Bhavnagar. Dr D C Bhatt, Sir P P Institute of Science, Bhavnagar.
12. Padmini, S. **Epidermal studies in the Amaranthaceae.** Osmania.
13. Parthipan, B. **Studies on the effect of methylisocyanate (MIC) on microorganisms and on crops.** Madras.
14. Sarma, Tarun Chandra. **Studies on biomass production of certain fastgrowing pulp yielding plants.** Gauhati. Dr Dinanath Bordoloi, Deputy Director, Regional Research Laboratory, Jorhat.
15. Sarmah, Ritupon. **Diseases of tea seed: A pathological and physiological investigation.** Gauhati. Dr H P Bezbaruah, Chief Advisory Officer, Nagarakata TRA, West Bengal.
16. Seethamraju, Venkata Satya Subramanyam. **Production, decomposition, mineral status and calorific value of litter in tropical dry deciduous forest ecosystem.** Bhavnagar. Dr B R Pandit, Reader, Department of Life Science, Bhavnagar University, Bhavnagar.
17. Shah, Achal. **Studies on genetic variability, heterosis and combining ability in pea, *Pisum sativum* L.** Kumaun. Dr S D Lal.
18. Sivaraj, N. **Phenology and reproductive ecology of angiosperm taxa of Shervaroy Hills, Eastern Ghats, South India.** Bharathidasan. Dr K V Krishnamurthy, Prof, Department of Life Sciences, Bharathidasan University, Tiruchi.
19. Subba Rao, J V. **Anatomy and chemotaxonomy of some *Tephrosia pers.*** Osmania.
20. Virendra Singh. **Productivity and nutrient cycling in energy plantations of important tree species in semi-arid region of Haryana.** Kumaun. Dr O P Toky and Dr S P Singh, Prof and Head, Department of Botany, Kumaun University, Nainital.
21. Vyas, Harsh. **Studies on the succession of pest complex of fruit trees and ornamental plants around Indore.** Devi Ahilya. Dr S R Devbhagt, Prof, Holkar Science College, Indore.

Agriculture

1. Barjinder Pal. **Studies on adaptation of cape gooseberry, *Physalis peruviana* L under Punjab conditions.** PAU.
2. Chowdhary, Bhupendra Mohan. **Studies on heterosis and combining ability for yield and agronomic characters in tomato.** Birsa Agrl.
3. Paramjit Singh. **Studies on performance of some mandarin cvs. on different root-stocks in submontane area of Punjab.** PAU.

Zoology

1. Anil Kumar, P C. **Impact of biocide, Senace and pH modification on freshwater fish, *Barilius bendelisis* Han.** Kumaun. Dr J C Pant.
2. Bellad, Akkamahadevi Satappa. **Endocrine regulation of female reproduction in *Calotes versicolor* Daud: A histophysiological study.** Karnatak. Dr B Y M Goudar, Reader (Retd), Department of Zoology, Karnatak University, Dharwad.
3. Bora, Ruchi. **Ecology of oak-seed grub of Kumaun, Nainital.** Kumaun. Prof M C Pant, Head, Department of Zoology, University of Kumaun, Nainital.
4. Ghazala Hussain. **Interaction of some antihypertensive drugs with central monoaminergic and cholinergic receptors.** AMU. Prof Ather H Siddiqi, Head, Department of Zoology, Aligarh Muslim University, Aligarh.
5. Hande, Rajpal Shripat. **The studies of acetylcholinesterases from the fingerlings of Indian major carps.** Bombay. Dr P V Pardhan, R J College, Ghatkopur, Bombay.
6. Jogi Naidu, Nalla. **Systematics and ecology of freshwater Cladocera of North-East Andhra Pradesh.** Andhra.
7. Md Arshaduddin. **Toxicosis of lead nitrate and lindane on *Asplanchna intermedia* (Rotifera) and *Paramecium caudatum* (Protozoa).** Osmania.
8. Mohd Aslam. **Studies on the genotoxic effects of Indian varieties of silicate dusts.** AMU. Prof Ather H Siddiqi, Head, Department of Zoology, Aligarh Muslim University, Aligarh.
9. Patil, Goudappa Malagouda. **Biology and anatomy of tasar uji fly (Diptera: Tachinidae) on tasar silkworm under Bangalore conditions.** Karnatak. Dr C J Savanurmah, Reader, Department of Zoology, Karnatak University, Dharwad.
10. Rajadurai, S. **Bioecological studies on omnivorous probergrothius sanguinolens Amy. and Ser., Phytophagous dysdercus olivaceus Fabr. and predaceous, *Antilochus coqueberti* Fabr. (Pyrrhocoridae: Heteroptera: Insecta).** Madras.
11. Sharma, Madan Lal. **Evaluation of immunomodulatory activity of some medicinal plants in mammals.** Jammu. Dr P L Duda, Prof, Department of Biosciences, University of Jammu, Jammu and Dr C L Chopra.
12. Singh, Sarita. **Studies of endocrine glands regulating calcium and inorganic phosphorus homeostasis in *Heteropneustes fossilis*.** Gorakhpur. Dr A K Srivastava.

Medical Sciences

1. Ambalagan, J. **Comparative study of kidney in some vertebrates by microdissection, histology, histochemistry and stereology.** Nagpur. Dr (Mrs) S S Navagiri, Indira Gandhi Medical College, Nagpur and Dr G M Indurkar, P D M Medical College, Amravati.
2. Gadre, A P. **Phytochemical investigations on *Tridax procumbens*.** SNTD. Dr S Y Gabhe.
3. Nanda Kumar, K S. **Immunological and microbiological study of streptococcal adhesion of pharyngeal and buccal epithelial cells of patients of rheumatic fever and rheumatic heart disease.** PGI.
4. Saroj Kumari. **Profile of macrophage activation analysis in human pulmonary tuberculosis.** PGI.
5. Thomas, George. **Studies on the influence of alpha 2 adrenoceptor antagonists on Digitalis induced cardiac arrhythmias.** Madras.

CLASSIFIED ADVERTISEMENTS

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Applications in the prescribed form together with the registration fee of Rs. 10/- payable through IPO/Demand Draft only (M.O. is not acceptable) drawn in favour of the Registrar, Osmania University, are invited for the following posts at the Centre for Plant Molecular Biology, Department of Genetics, Osmania University, so as to reach the undersigned in person or by post on or before 6-1-1992 :

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 2. Reader .. Two
 3. Lecturer .. Two
 4. Research Associate .. Four
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- i) A Doctorate Degree in the concerned subject (Genetics/Plant Sciences/Plant Molecular Biology/Biochemistry).
- ii) An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and research at post-doctoral level. Preference will be given to candidates with experience in Recombinant DNA technology.

READER

- i) Good Academic record with Doctoral Degree or equivalent published work in the concerned subject (Genetics/Biochemistry/Life Sciences/Plant Molecular Biology).

- ii) About five years' experience of teaching and research provided that atleast three years as Lecturer in a recognised degree college or an equivalent position. This condition may be relaxed in the case of candidates with outstanding post-doctoral research work. Experience in handling of Molecular Biology/Genetic Engineering Techniques as evidenced by publications is desirable.

LECTURER

Master's Degree in relevant subject with atleast 55% marks or its equivalent degree (B+) and consistently good academic record.

DESIRABLE

- (i) Ph.D. in Genetics/Biochemistry/Biotechnology/Life Sciences/Plant Molecular Biology.
- (ii) A minimum of two years of Post-Doctoral research experience in the area of Plant Molecular Genetics/Genetic Engineering of related field as evidenced by publications.

RESEARCH ASSOCIATE

Master's Degree in the relevant subject with 55% (B+) marks or its equivalent degree and consistently good academic record

DESIRABLE

- (i) Ph.D. in Genetics/Life Sciences/Biochemistry/Microbiology
- (ii) Preference will be given to persons with Research Experience in Plant Molecular Biology

PAY SCALE

1. Professor .. Rs.4500-7300
2. Reader .. Rs.3700-5700
3. Lecturer .. Rs.2200-4000
4. Research Associate .. Rs.2200-2700

AGE

1. Professor .. Not more than 50 years
2. Reader .. Not more than 40 years
3. Lecturer .. Not more than 35 years
4. Research Associate .. Not more than 35 years

NOTE :

- (i) Age limits does not apply to the employees of this University;
- (ii) Relaxation in age to the extent of five years shall be granted to the candidates belonging to Scheduled Castes, Scheduled Tribes and Backward Classes; &
- (iii) Relaxation in age to the extent of five years shall be granted to the teachers who have put in atleast five years of service in any of the colleges affiliated to the Osmania University.

RESERVATIONS

15%, 6% and 25% reservations as per roster system are made for the candidates belonging to SC, ST. & BCs. respectively for the posts of Reader and Lecturer only.

Application forms can be had from the Director, Department of University Press & Publications, Osmania University, Hyderabad on payment of Rs.10/- in person or by sending an IPO/Demand Draft together with postage charges made payable to the Director and by sending a self-addressed envelope of 14.5 X 26.5 cms.

REGISTRAR

SAURASHTRA UNIVERSITY

Applications in prescribed forms are invited for the undermentioned posts. Application forms alongwith detailed requirements of qualifications, experience and other necessary details regarding these posts will be available from the Registrar, Saurashtra University, University Campus, University Road, Rajkot-360 005 on sending a selfaddressed envelope of the size 28 x 12 cms. with postage stamps worth Rs.5/-. Applications in seven copies should reach this office on or before 31-1-1992 alongwith crossed Indian Postal Order worth Rs.10/- (Non refundable) for all the posts in favour of the Registrar, Saurashtra University, Rajkot. Qualifications and experience as mentioned in the details to be supplied with the application form will be considered final. Age ordinarily not exceeding 55 years. The age, Educational Qualifications and Experience may be relaxed in suitable cases.

1. Professor of Gujarati (Three Posts)
2. Professor of Journalism (One Post)
3. Professor of Economics (One Post)
4. Professor of Bio-Sciences (One Post)
5. Reader in Home-Science (One Post)
6. Reader in Library & Inf. Sci. (One Post)
7. Reader in Bio-Sciences (One Post)
8. Reader in Computer Science (One Post)
9. Lecturer in Journalism (One Post)
10. Lecturer in Library & Information Science (One Post)

11. Lecturer in Computer Science (Two Posts)
12. Lecturer in Economics (One Post)
13. Lecturer in Chemistry (One Post)
14. Director, College Development Council (One Post)

PAY SCALES

1. Professor : Rs. 4500-150-5700-200-7300.
2. Reader : Rs. 3700-125-4950-150-5700.
3. Lecturer : Rs. 2200-75-2800-100-4000.

J.M.UDANI
REGISTRAR

UNIVERSITY COLLEGE OF MEDICAL SCIENCES & GURU TEG BAHADUR HOSPITAL, SHAHDARA, DELHI-110095

Advertisement No. :

MC/Estab./2/11/91-IV.

Applications on the prescribed form are invited for the following Teaching and Non-Teaching Posts to reach latest by 15.01.1992.

A.TEACHING

Professors :- Rs. 4500-150-5700-200-7300
— One each for the departments of Dentistry, Psychiatry* & Ophthalmology.

Reader :- Rs. 3700-125-4950-150-5700 —
Two posts each for the departments of Biochemistry* and Obst. & Gynaecology; One post each for the depts. of Radiology, E.N.T.*, Medicine* and Physiology.

Lecturers :- Rs. 2200-75-2800-100-4000 :
Two posts for the depts. of Physiology* and Dermatology & STD*, and One Post each for the Depts. of Microbiology* (Temp), Radiology* (Temp).

Sr. Residents/Sr. Demonstrators :- Rs.3150-3250-3350 — Anatomy (3), Physiology (4), Pathology (3), Pharmacology (5), Microbiology (1), Forensic Medicine (1), Paediatrics (1) Dermatology & STD (1), Surgery(1), E.N.T. (1), Obst. & Gynaecology (1), Anaesthesiology (1).

E.Q. : for Professors, Readers, and Lecturers: P.G. in the subjects concerned as included in the Schedules of Medical Council of India Act 1956/Ordinance XXIV of the University of Delhi. For Non-Clinical Departments persons possessing M.Sc. with Ph.D/D.Sc. in the subject concerned will also be eligible. **E.Q.:** for Sr. Residents/Sr. Demonstrators: P.G. degree or diploma in the subject concerned. Upper age limit 33 years.

B. NON-TEACHING

1. Sr. Photographer:- (1 Post) for Photography Section: Rs. 1640- 2900; **E.Q. :** Diploma in Arts & Photography from a recognised Institution. Experience in Micro-filming, reflex printing, Projection slides, making reproduction of scientific drawing charts and Dark Room Techniques. Some practical experience of Photography developing, printing, enlarging colouring and other processing work.

2. Technical Asstt.: (5 Posts) (out of which one post is reserved for S.C.) Rs. 1400-2300; E.Q. : Graduate in Science from recognised University. Two years experience as Technician/Sr. Lab. Assistant or in equivalent capacity in a Medical College/recognized Hospital. Diploma in Medical Lab. Technology desirable.

3. * Technician for Central Animal House : (1 Post): Rs 1400-2300; E.Q. Graduate in Science preferable with Zoology as one of the subjects. Diploma in Laboratory Animal Science Course/Lab. Animal house and handling and breeding animals in a recognised/Govt. Research Institution.

4. Statistical Asstt. :- (1 Post) for Computer Cell: Rs. 1400-2300; (a) **Essential :-** M.Sc (Statistics) with first division and Training in Computer Programming. (b) **Desirable :-** 2 years' experience of working in the field of Medical Statistics. Some experience of Computer Programming.

5. Sr. Technician (Electronics) for Central Workshop (1 Post) Rs. 1640-60-2600-EB-75-2900. Diploma in Electrical/Electronics Engineering of a recognised Institution with atleast three years practical experience of repairing, maintenance and handling of electronic instruments in a recognised workshop.

6. * Jr. Technician (Electronics):- (1 Post) for Central Workshop: Rs. 1400-2300; E.Q. : Certificate in special trades and atleast 5 years' experience in recognised institution.

7. * Health Educator:- (1 Post reserved for S.C.): Rs. 1400-2300; E.Q. : M.A. in Social Sciences, Diploma in Health Education. Two years' experience in the field.

8. Public Health Nurse: for P.S.M. Deptt. (1 Post reserved for S.C.) Rs. 1400-2300; E.Q. : B.Sc. Nursing or 'A' grade Nurse with Health Visitor training or 'A' grade Nurse with Public Health Training.

9. Professional Assistant: (1 Post) for the Library: Rs. 1640-2900; E.Q. : M.A./M.Sc./M.Com. and B.Lib. Sc. or B.A./B.Sc./B.Com, B.Lib. Sc. and 4 years of experience in the Library as a whole.

10. Stenographer :- (2 Posts) (1 post each reserved for S.C. & S.T.): Rs. 1200-2040; E.Q.: Matriculation or equivalent qualification with proficiency in shorthand at a speed of not less than 80 w.p.m. and proficiency in typewriting at a speed of not less than 35 w.p.m.

11. Jr. Asstt.-cum-Typist: (6 Posts) (out of which 1 post is reserved for S.C. and 1 post is for S.T.): Rs. 950-1500; E.Q.: Matriculation or equivalent qualification with minimum 35 w.p.m. in English typewriting.

12. Despatch Rider :- (1 Post): Rs. 950-1400; E.Q.: Should have a valid licence for driving three wheeler, Professional skill in driving, motor mechanics and general smartness with polite manners. **Desirable:-** A pass in Middle School Standard.

13. Care-Taker:- (1 Post): Rs. 950-1500; E.Q. : Matriculation with some experience of Maintenance of electrical, sanitary, water installations and Maintenance of Cleanliness and upkeep of buildings. Ex-servicemen of J.C.O.'s rank will be given preference.

Note:- Qualification and experience can be relaxed in exceptional cases on the recommendations of the Selection Committee.

* All those candidates who have applied for any of these Posts in response to earlier advertisement of the College appearing in May/June 1991 and for which selection has not so far been held, need not apply again. However, they may intimate the College if they still wish to be considered, in which case they may, it required, update their bio-data.

All posts carry usual allowances at the rates prescribed by the University from time to time.

The prescribed application form can be obtained from the Office of the University College of Medical Sciences & Guru Teg Bahadur Hospital, Shahdara, Delhi-110 095, personally or on written request alongwith a self-addressed envelope of size 28 cm. x 13 cm. with postage stamps worth Rs. 3/-. The cost of one form for the Teaching Post is Rs. 2/- which can be sent, if required by post, by Indian Postal Order drawn in favour of the Principal, University College of Medical Sciences, Delhi-110095.

PRINCIPAL

REGISTRAR

THE UNIVERSITY OF BURDWAN RAJBATI : BURDWAN WEST BENGAL

Advertisement No. 7/91-92 dated 9.12.91

Applications in the prescribed form are invited for the following posts in the approved UGC's Scales of Pay :- (A) Professor of Commerce - One post (B) Reader in Physics - One post (C) Lecturer in Botany - One post. **Minimum Qualifications :-** As prescribed by the UGC. **SPECIALISATION OR PROFICIENCY :** For post "A" - Any branch of the subject. For post "B" - Nuclear Physics Theoretical/Experimental. For post "C" - Algology/Plant Ecology/Plant Taxonomy/Pteridology/Genetics and Plant Breeding. The choice of the Selection Committee may not necessarily be confined to these who apply formally for the posts indicated at "A" & "B". Prescribed application forms along with UGC's prescribed qualifications may be obtained from Rajbati, University of Burdwan, personally on payment of Rs.10/- in Cash at the University Sales Counter from 11 a.m. to 12 noon on Saturdays and 11 a.m. to 1-30 p.m. on other working days or by sending a self-addressed stamped (Rs.2/-) envelope (11"x 9") accompanied by Crossed Indian Postal Order of Rs. 10/- in favour of the Finance Officer, University of Burdwan. Last date for submission of application with requisite application fee of Rs.5/- is 25th January, 1992.

SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING SHEGAON 444 203 (Maharashtra)

WANTED

Applications are invited for the following vacant posts. Furnish your BioData with demand draft of Rs 10/- in favour of Principal, S S G M C E Shegaon, within 20 days from the date of advertisement.

DEPARTMENT	POST REQUIRED
1) ELECTRONICS/ ELECTRICAL	PROFESSORS/ASSTT.PROFS.
2) COMPUTER ENGG.	PROFESSOR/ASSTT. PROFS.
3) MATHEMATICS/PHY/ MECHANICAL ENGG.	LECTURER
Qualifications, pay scale etc. as per AICTE/Amravati University Rules. Experienced candidates will be preferred and considered for higher start.	
DR. D.G. Wakde Principal	S. S. Patil Chairman

BANASTHALI VIDYAPITH
(Deemed to be University)

Applications are invited for the posts of Lecturers in Zoology-1, Computer Science-1, Electronics-1, Music (Vocal/Instrumental)-1, Physical Education-1, Education (Teaching of English)-1, Foods & Nutrition-2.

Qualifications and pay scale as per U.G.C. norms. Details of the same & of other benefits and terms & conditions will be supplied with the application form.

Last date of submission of application : 4 weeks from the date of advertisement.

Application forms can be obtained by sending self-addressed envelope of 16x23 c.m. size with Postal Order of Rs. 5 (Rs. 1 for SC/ST candidates & Rs. 10 if required by registered post) to the Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022. No. 7/91.

OSMANIA UNIVERSITY
HYDERABAD 500007

CORRIGENDUM

In the advertisement No 4/91 Dated: 10.12.91 it may be corrected to read as "THE POSTS ARE TENABLE UPTO 31.3.96".

REGISTRAR

AMRAVATI UNIVERSITY
Employment Notice

No.AU/123/Est/B-1331/91 Dated : 11.12.1991.

Applications are invited for the following posts:

REGISTRAR: Pay scales: Rs.4100-125-4850-150-5300 (likely to be revised) (Total emoluments on initial basic Rs.6305/-).

Qualifications

1) A postgraduate degree with at least 55% marks or its equivalent grade.

2) At least 15 years of experience as Lecturer/Reader of which 8 years should be in the Reader's grade with experience in educational administration;

OR

Comparable experience in research establishments and other institutions of higher education.

OR

15 years of administrative experience of which 8 years as Deputy Registrar and/or an equivalent post;

3) Proficiency in Marathi.

Age not less than 30 years on the last date of receipt of application.

READER IN PHYSICS: Pay Scale: Rs.3700-125-4950-150-5700/- (Total emoluments on initial basic Rs.5905/-).

Qualifications : Good academic record with a Doctoral Degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of teaching materials.

About five years experience of teaching and/or research, provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Prescribed application form with details of qualifications can be had on payment of Rs.10/- and Rs.5/- in case of BC candidates (SC,ST,VJNT) (non-refundable) by cash/bank draft payable to the undersigned along with self-addressed envelope (12"x5") affixing postal stamps worth Rs.4/- upto 4th Jan. 1992. For obtaining application form by post the envelope bearing such requisition should indicate the name of post for which form is required. The last date of receipt of application form alongwith Rs.15/- and Rs.7.50 in case of BC candidates (SC,ST, VJNT) as application fee by cash/bank draft payable to undersigned is 10th January, 1992.

REGISTRAR

KOTHAGUDEM SCHOOL OF MINES
OSMANIA UNIVERSITY
Kothagudem - 507 101 (A.P.)

Date : 11.12.1991

NOTIFICATION

Plain paper applications giving information about name, address, age, educational qualifications, experience engagements in research, receipt of fellowship, etc are invited for the post of Junior Research Fellow for a CSIR project tenable for a maximum period of three years. Minimum qualifications are Post-Graduate degree in Physics, Geophysics or Applied Mathematics. Candidates with experience or qualification in Computer Applications will be preferred. Candidates, who have passed NET/GATE may also apply.

The application should reach Prof. Virendra Singh, Principal Investigator, CSIR Project, Kothagudem School of Mines, Kothagudem-507101 (A.P.) on or before **January 16,1992.**

Principal Investigator
CSIR Project
KSM, Kothagudem 507101

DR. YASHWANT SINGH PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY, NAUNI (SOLAN) HP "ACADEMIC BRANCH"

ADMISSION NOTICE

Applications (in-duplicate) are invited upto 4.1.1992 for admission to Doctoral Programme in the disciplines shown as under against each college for the Academic Session 1991-92 (Second Semester) commencing from 15-1-1992. The eligible candidates must bring all the original certificates and present themselves for interview on the date noted below against each college.

Disciplines	Date of interview	Minimum qualifications
I. COLLEGE OF HORTICULTURE NAUNI (SOLAN)	7-1-1992 (11.00 A.M.)	M.Sc. in the concerned discipline from a recognised University with an OGPA of 7.00/10.00 or 3.20/4.00 or its equivalent under course credit system or at least 65% marks in annual system of examination. For Forestry, M.Sc. with AIFC or SFS 2-Year diploma course with the above OGPA will also be eligible
1. Fruit Culture & Orchard Management		
2. Post-harvest Technology		
3. Vegetable Crops		
4. Fruit Breeding & Genetic Resources		
5. Entomology & Apiculture		
6. Mycology & Plant Pathology		
II. COLLEGE OF FORESTRY NAUNI (SOLAN)	8-1-1992 (11.00 A.M.)	OR Degree of a foreign University with at least 'B' grade or its equivalent as recognised by the Academic Council
1. Forest Biology & Tree Improvement		
2. Silviculture & Agroforestry		
3. Forest Products & Utilization		
4. Economics		
5. Soil Science & Water Management		

RESERVATION FOR SCHEDULED CASTES/SCHEDULED TRIBE CANDIDATES

22½% of the total seats shall be reserved for the candidates belonging to Scheduled Caste (15%) and Scheduled Tribe (7½%).

GENERAL

- i) The inservice candidate must apply through proper channel by specified date with specific letter of sponsorship.
- ii) NO SEPARATE INTERVIEW LETTERS WILL BE ISSUED.
- iii) No TA etc. will be admissible for attending interview. The ineligible candidate(s) need not come for interview.
- iv) Prospectus-cum-admission form is obtainable from the office of the undersigned on payment of Rs.15.00 in cash at the counter or by sending crossed Indian Postal Order worth Rs.25.00 payable to the Comptroller, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Nauni (Solan) HP.
- v) NO MONEY ORDER WILL BE ACCEPTED FOR THIS PURPOSE.
- vi) List of selected candidates as well as the candidates placed on waiting list for disciplines of both the colleges will be displayed by 9-1-1992.

**BHARAT BHUSHAN
REGISTRAR**

MASS COMMUNICATION RESEARCH CENTRE JAMIA MILLIA ISLAMIA NEW DELHI-110025

ADMISSION NOTICE NO.X/1992

Applications are invited for a two-year M.A. Course in Mass Communications which comprises Radio/Television, Film and Audio-Visual Production. Candidates who have taken their first degree in Arts/Humanities, Social Sciences, Natural Sciences, Engineering or Medicine are eligible to apply provided they have secured fifty percent marks in their first degree examination. Candidates should not be more than 30 years of age as on 15.07.1992. Candidates will be shortlisted for written tests on definite evidence of their familiarity or involvement in one or more of the following fields:

Still Photography, Cinema, Radio, Television, Graphic Art Design, Theatre Acting or Production, Vocal or Instrumental Music, Journalism in Print or Broadcast Media, Creative Writing, Communication Experience in Natural or Social Sciences or Technology, Social and ameliorative movements.

Candidates shortlisted on the basis of this evidence will be called for written tests. On the basis of these tests, they will be further shortlisted for interview by the Admission Committee.

Application forms alongwith the Prospectus can be had from the undersigned either personally from 10.00a.m. to 1.30p.m. on any working day or by sending a self-addressed and stamped envelope. Application should be accompanied by documentary evidence of aptitude in fields listed above.

Application for obtaining the admission form should be accompanied with crossed Bank Draft for Rs.70/- (inclusive of the cost of Prospectus). This amount shall not be refundable. The draft should be drawn on a bank having its branches in Delhi and New Delhi and should bear a validity date of six months. Form will be available w.e.f. 16.12.1991. Candidates whose results have not been declared till the date of applying can apply in anticipation of their results.

The last date for receipt of the application forms is **Monday, the 13th January, 1992 upto 5.00p.m.**

Dated: 09.12.1991

M.B. Mughal
Administrative Officer

University News

MONDAY, DECEMBER 30, 1991

Rs. 2.50

The Changing Dimensions of Sport



IGNOU ETV



Evaluation of University Teachers



The School Beautiful



Training for Rural Development



National Quality Institute



Management Education and Literature

THE GANDHIGRAM RURAL INSTITUTE

(DEEMED UNIVERSITY)

GANDHIGRAM-624 302: ANNA DISTRICT

Applications are invited for the Post of **REGISTRAR**, in the Pay Scale of Rs.4500-150-5700-200-7300 with admissible allowances.

Minimum Qualification prescribed by the University Grants Commission for the Post of Registrar i.e.

1. Post Graduate Degree with at least 55% marks or its equivalent grade.
2. At least 15 years of experience as Lecturer/Reader of which 8 years should be in Reader's Grade with experience in Educational Administration OR Comparable experience in research establishments and other institutions of higher education. OR 15 years of administrative experience of which 8 years as Deputy Registrar or an equivalent Posts.

Application forms and other details can be obtained from the Registrar by sending a D.D. for Rs.30/- in favour of the **REGISTRAR** payable at Gandhigram. The Last date for receipt of filled in application is **25th January, 1992.**

Date : 16.12.91

REGISTRAR

UNIVERSITY NEWS

VOL. XXIX DECEMBER 30
No. 52 1991
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Education published by the
Association of Indian Universities

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Opinions expressed in the articles
are those of the contributors and do
not necessarily reflect the policies
of the Association.

Editor :
SUTINDER SINGH

The Changing Dimensions of Sport

G. S. Sivia*

Introduction

Sport is a rich cultural heritage of the human society and is as old as the mankind. New Encyclopaedia Britannica describes the history of games as the history of man. He invented an infinite number of sports and games in folk forms to meet his recreative needs. His creative faculties reveal remarkable ingenuity in devising countless forms of sport played on earth, in water and in air. The spectrum is surprisingly wide. For example, only racing accounts for a rich variety; such as racing with men, women, horses, camels, donkeys, dogs, chariots, aeroplanes, cars, motorcycles, bicycles, boats etc.

Sport as play

Play is the germinating seed of sport and is visible in the instinctive behaviour of all living species when they run or chase for fun. The instinct got transmitted from lower species to the human beings at the beginning of social evolution. To quote Huizinga, "it appears to have permeated all levels of society from the year dot". Gay pursuits involving spontaneity and pleasure are the fundamental ingredients of play. Merit Students Encyclopaedia, while tracing the origin of sport, as a 'terminology' to the French word "de sport" defines it as "off from work and hence to play". At the root, therefore, sport is essentially a manifestation of play. As societies moved from the ancient cultures to the contemporary industrial environments, the play element in sport went on diminishing. Huizinga stated that sport has been raised to such a "pitch of high technical organisation and scientific thoroughness that the real play spirit is threatened with extinction." In its original sense, sport is synonymous with 'play' but it denoted different connotations at different periods of history.

The Greek Sport

For the ancient Greeks, sport stood for socio-religious ceremonies. Between 1000 to 300 B.C., they celebrated religious festivals in honour of the local deities. The celebrations, inter-alia, included athletic contests. At the beginning, the festivities were characteristically informal and localised. With the passage of time, however, the devotional offerings culminated into organising a formal quasi-socio-religious mela in the name of the Olympic Games in honour of Zeus (the most revered Greek God) at a periodicity of 4 years at a village known as Elis located at the foothill of Mount Olympus. Besides the athletic contests, the Olympic programme also featured recitation by scholars and poets, display of art works and assembly of diplomatic missions. The competing city states like Athens, Sparta, Thebes etc. which, otherwise, were at constant war with one another signed a solemn 'Truce' to be strictly observed during the period of the games. Only Greeks who has never committed any crime were eligible to participate. Withdrawal was accompanied with disgrace and punishment. Prize for winning was not any monetary award but a crown made of live branches, cut with a gold sickle by a boy of pure Greek blood, whose parents were alive, from the grove grown behind the temple of Zeus. Professionals' entry was not only banned

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16 Kotla Marg, New Delhi - 110 002

but also they were looked down upon with contempt. The statue of Astylus known for his running prowess was destroyed and his home converted into a prison when he changed loyalties for money from Croton to Syracuse. An Olympian boxer Eupolus and his opponent were heavily fined and the punishment was inscribed as warning to all athletes at the entrance of the Olympic Stadium, when Eupolus was found to have bribed his opponent to let him win. This is what sport signified for the Greeks—a symbol of brotherhood, devotion, sacrifice, and religious fervor. The Greek sport stood firmly on its moral strength, governed by conscience.

Professionalism and violence

The fading history of the Greeks began witnessing professionalism mainly because of the jealousy and rivalry between the city-states and their intense desire to win. Euripides in his play 'Autolycus' remarked that of all the countless evils throughout the Hellenes, none was worse than the race of athletes. After the Romans conquered the Greek peninsula, professionalism reached the highest pitch. The wealthy class and the aristocracy began to patronise the gladiators who played for money like mercenaries. Even private schools began to be run for training them. The gladiatorial fights were financed by them on a big scale. The affluent strata of society enjoyed spectacles of profusely bleeding fights to death between the gladiators in the amphitheatres. Sport turned into 'bloody circus' shows. Thus history witnessed a new dimension of sport. On the theological plane, the festivals, celebrated to honour the deities, turned sacrilegious to religion. The emerging evils resulted in the closure of the ancient Olympic Games in 394 A.D. by a decree of the Emperor Theodosius II.

Next came the medieval society. In the feudal structure of society, sport took yet another turn. The Kings and Lords went on hunting sprees as a pleasant pass-time, the peasantry and the lower strata participated in wrestling and footraces. The Knights, usually youth of the nobility, practised on war weaponry to master the skills of chivalry. Thus sport acquired a multifacial character i.e. a pleasant pass-time, recreation and learning skills of a warrior.

As educational process and leisure-time

A unique feature of the Roman sport was brutal violence. Conceding defeat was socially denounced as cowardice and fighting to death was eulogised as heroic feat. At the closing of the 14th and the beginning of the 15th centuries, a wave of new thinking, in the name of Renaissance, sprouted in Europe which believed in the

revival of the Greek Classics. This philosophy considered man as an embodiment of multifarious faculties such as art, literature, rhetoric and physical prowess finding its expression in sports and games. Education was interpreted as a process of harmonious development of personality in which pursuits like sports also had a role to play. Sport, hitherto, considered as a "deviant" behaviour found a place in the educational system. Dr. Thomas Arnold, Principal of the Rugby Public School, played a pioneer's role in its acceptance as conducive to the school environment. Dr. Arnold's example was followed by other British Public Schools which became the main nurseries of sports. Acceptance of it in the educational curriculum gave rise to another development. Britain experienced industrial revolution in the 19th century. Working hours had been considerably reduced. For meaningful engagement of free time, the public school graduates began to organise club sport, within the framework of the public school philosophy — sport for sport sake and winning was secondarily. Invention of the steam engine, print media and tele-communication system reduced distances. This situation helped in expanding club level sport to regional, national and international scale. Since sport was now organised under the patronage and guidance of the public school graduates, it began to be conducted according to well codified rules and regulations. Baron Pierre de Coubertin taking a hint from the prevailing favourable environment revived the Olympic Games. As he was aware that gladiators were the cause of destroying the ancient Olympics, he introduced Amateur Rule as a fundamental code and set a motto that important thing in the Olympic Games was not winning but fighting well. Sport found a new direction and was now considered as an integrated component of education and a meaningful engagement of leisure time.

The commercial dimensions

A couple of centuries ago when mechanical devices like the engine, electricity, sound, audio-visual and tele-communication systems were invented, none could anticipate their far reaching consequences on life. The technological advances have tremendously quickened the pace of life and have brought different parts of the world to a very close vicinity. Sport could not escape the impact. TV and the print-media generated immense publicity and spectators' interest. These two factors alone became a fertile pasture for attracting huge gate collections and sponsorship. Money began to flow on a big scale; and sport becoming a marketable commodity in the near future can't be ruled out. G. Willickson

(Contd. on page 5)

IGNOU ETV : Pedagogical Analysis

D.R. Goel*

Kiran Jaiswal*

Introduction

To take higher education to more people in the remote corners of the country, the Indira Gandhi National Open University (IGNOU) has started telecasting its educational programmes on Television with effect from 20th May, 1991.

Initially, these programmes are of half-an-hour duration, thrice a week (Monday, Wednesday, Friday from 6.30 to 7.00 a.m.). These programmes aim to supplement the printed course material already sent to students.

The University has around 1,12,000 students registered for its various programmes who receive counselling at 170 Study Centres, coordinated by 16 Regional Centres, viz, Hyderabad, Patna, New Delhi, Ahmedabad, Karnal, Shimla, Bangalore, Cochin, Bhopal, Pune, Shillong, Bhubaneswar, Jaipur, Madras, Lucknow, and Calcutta.

The University has a Production Unit at Tughlakabad and a Post Production Centre in the Campus at the Maidan Garhi, both in Delhi.

IGNOU programme is based on 10 academic programmes with a number of courses in each. The programmes are:

1. Master of Business Administration (MBA)
2. Diploma in Distance Education
3. Diploma in Creative Writing in English
4. Certificate Course in Food and Nutrition
5. Bachelor of Arts/Commerce
6. Bachelor's Degree in Library & Information Science
7. Diploma in Computers in Office Management
8. Diploma in Financial Management
9. Diploma in Marketing Management
10. Diploma in Human Resource Development

Demand for IGNOU print material as a resource among students of even the regular educational system is rising. Recently, the university made its distance education books available for open sale.

Under the present plans, IGNOU is launching in 1993 B.Sc. in Nursing, and advanced diploma in Water Resources Management and Construction Management.

There is growing overseas demand for IGNOU courses. Mauritius has sought the IGNOU B.A., B.Com. and B.Sc. courses and Canada-based Commonwealth of Learning is assisting the University in meeting the study needs of Mauritius. A second IGNOU proposal has come from the University of Nairobi, to start diploma and degree courses in management.

Rationale

No study has yet been reported on the IGNOU ETV programmes. There is a need to study various dimensions, such as, designing, preparation, contents, presentation, production, transmission, reception, suitability, utility, and effectiveness. Also interest, appeal, reactions of the viewers need to be studied quite analytically and thoroughly. The study under investigation is one such attempt.

Still many questions are to be addressed, such as, what are the aims of the IGNOU programme? Is the programme pedagogically sound, that is, what is the total duration of the programme? What is the medium of instruction of the programme? How many teaching points are there in the programme? What is the level and sequence of different teaching points? Is each teaching point adequately dwelt upon? How is the transition from one idea to another? What is the shooting location of the programme? Is the sound clear during the telecast? Is the music used appropriately? Are the visuals clear during the telecast? Is there the necessary coordination between sound and the visuals? How is the sequence of visual presentation? How is the camera focus? Is the choice of colours appropriate? What is the speed of delivery of the programme? Is the level of language used appropriate? What is the level of programme in relation to the target viewers? What is the teaching level of the programme? Which methods, devices and maxims are used in the programme? What aids are used in the programme? Are the methods, devices, maxims and aids used appropriate? What is the

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format of the programme? Whether the format used is appropriate?

Objectives

1. To analyse the contents of IGNOU programmes.
2. To analyse the presentation of IGNOU programme.

Methodology

Sample

Out of the IGNOU programmes telecast from 21-8-1991 to 13-9-1991, ten programmes were recorded. The names of the programmes, alongwith the course (subject), date of telecast are presented as follows :

1. History of Computers, [Computers in office management], 21-8- 1991
2. Jean Piaget : Steps of Child development, [Foundation Course in Science & Technology], 26-8-1991
3. Maintaining quality : An ongoing concern, [Distance Education], 26-8-1991
4. International Business Environment, European Community in the 90s [Management], 30-8-1991
5. The method of Science, [Science & Technology], 2-9-1991
6. Library cataloguing practice, [Library and Information Science], 4-9-1991
7. Marketing of services: ITDC - A case study [Management], 6-9-1991
8. Satellite, [Science & Technology], 9-9-1991
9. Communication in the office, Part-1, [Computers in office management], 11-9-1991
10. Effective selling, [Management], 13-9-1991

Tool

To analyse the content and presentation of IGNOU programmes, an "*Observation Schedule for IGNOU Programmes*" was used. This tool was constructed by the investigators. It includes 24 items. All these items are close ended. The items are related to course, medium of instruction, objectives, density of teaching points and their logical sequence, treatment of each teaching point, and transition from one teaching point to another, language, sound, music, visuals, audio-visuals synchronization, sequence, camera focus, colours, speed of delivery, location, relevance to viewers, teaching level of the programme, methods, skills, aids, format etc.

Data Collection

The investigators played back each recorded

programme and after viewing each programme the data were collected with the help of the tool.

Data Analysis

The data related to content and technical aspects of IGNOU programmes have been analysed by finding out the frequency of responses against each point on the scale and converting them into percentage.

Results

- (i) The medium of instruction of 80% of the programmes was English, whereas, in 20% of the programmes the medium of instruction was Hindi.
- (ii) Forty percent of the programmes were on knowledge enrichment, 20% on developing scientific attitude, 20% on explaining difficult concepts, whereas, 20% programmes were on creating awareness and stimulating learning.
- (iii) 80% of the programmes were found to have adequate number of teaching points.
- (iv) There was an excellent logical presentation in 40% of the programmes, in 50% of the programmes the logical sequence was satisfactory, whereas, in 10% the logical sequence was poor.
- (v) In 60% of the programmes, the individual teaching points were discussed adequately, whereas in 40% of the programmes all the teaching points were not discussed adequately.
- (vi) The transition from one idea to other in 80% of the programmes was smooth.
- (vii) In all the programmes the level of the language used was appropriate.
- (viii) The sound was clearly audible during the telecast in 90% of the programmes.
- (ix) The IGNOU ETV used music appropriately.
- (x) Visuals used were adequate in 90% of the programmes.
- (xi) In most of the programmes the sequence of visual presentation and coordination of sound & visuals was appropriate.
- (xii) The visuals were focussed sharply in all the programmes.
- (xiii) In 30% of the programmes the choice of colours was excellent, whereas, in 60% it was good.
- (xiv) The speed of delivery of the contents was normal in all the programmes.
- (xv) The programmes were appropriately produced

indoor or outdoor depending upon the nature of the programme.

- (xvi) All the programmes were at a suitable levels with respect to the target viewers.
- (xvii) Sixty percent of the contents of IGNOU ETV programmes was at fact level, whereas, 40% at concept level.
- (xviii) Lecture, demonstration and explanation methods were frequently used and found quite effective.
- (xix) Almost all the programmes integrated the skills of introducing lesson stimulus variation, explanation, illustration and lesson closure, but the reinforcement and probing questioning skills could be used more meticulously.
- (xx) All the programmes made use of graphics, captions and experimental aids optimally.
- (xxi) The formats were well designed in all the programmes.

Conclusion

The pedagogical analysis of the IGNOU programmes reveals that these programmes are quite effective, but still there is a scope for improving upon the quality of these programmes. The basic questions emerging are — Can the IGNOU programmes fulfil the needs of target viewers? Mostly these programmes are beamed in English and a few in Hindi. According to the aims of IGNOU ETV, as the programme is for multilingual groups, the medium of instruction should be such that it is intelligible to all.

The identification of topics for the IGNOU programmes has to be done more meticulously by ascertaining the needs of viewers. Due weightage could be given to all the courses which can be mediated through television. The specific objectives of the programmes should be clearly enunciated. The content volume is well in proportion to the time available and the level of the viewers. The contents are well sequenced and the individual teaching points dwelt on adequately. Different teaching points are treated optimally. The transition from one shot to the progressive shot is quite smooth. The language used could be more appropriate for multilingual viewers. The language level is quite suitable.

There is audio-visual clarity. The music is such that it helps concentrate and contributes to the understanding of subject matter. View composition is quite balanced focusing on what is required. The speed of delivery is quite normal. More programmes are needed at concept and rule levels. Skills of probing questioning

and reinforcement could be more thoroughly integrated. The variety of teaching aids are used optimally. Still there could be variety in the methods and formats of the programmes. The IGNOU ETV programmes are quite appreciable and appealing. So, the frequency of the IGNOU ETV programmes may be increased.

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The Changing Dimensions of Sport

(Contd. from page 2)

anticipated "as the year 2000 approaches, sport will find itself very deeply paired with business and corporations". Technology has influenced the mode of thought on such a high scale that it has revolutionised the value system. Commercialism in sport is now not considered an evil of the magnitude it was considered in the ancient times. The cultural content of the ancient Greek Sport and the philosophy of sport for sport sake have vanished into the limbo of history. UNESCO publication, "Courier" (Jan.87 issue) rightly commented that sports and games form a part of the cultural and artistic heritage of humanity but, today, only some 20 sports monopolise the world's scene because of the fascinating projections of the small screen and the cult of heroes created by the media. The approach has become professional. Performances are video-taped and analysed in minute details. Clinics are conducted before and after the competitions. A great importance is attached to the application of Medicine and Psychology. All that is done is with a view to improve performances.

Conclusion

Historical Introspection reveals sport undergoing many changes in response to the changing social matrix. From cultural content, its mettle is turning highly commercial. Cash prizes, contrary to the amateur spirit, are now being publicly awarded in the garb of incentives and scholarships by the governmental agencies. Millions of dollars are at stake in successes and defeats at the international arena. Even though the trend is destroying the cultural identity of sports, yet, at the same time, it would be unrealistic to detach from the realities. At the national and international scale, falling in line with the trend appears unavoidable but sport will serve its cause in the right perspective if in the educational system it continues to play its role as a component of education.

THE SCHOOL BEAUTIFUL

J.S. Rajput*

Every discussion on education necessarily drifts to the status of basic education in the country. A reference is made to the Constitutional mandate contained in Article 45. The framers of the Constitution set a goal before the nation — all children upto the age of 14 year shall receive free and compulsory education. This has generally been interpreted as elementary education, imparted during the first eight years in the schools.

There is an alternative interpretation of this mandate and the protagonists of the same forcefully argue that the founding fathers of the Constitution had the age group 0-14 in their minds. Hence, they argue the need to provide early childhood care and education as an integral part of basic education. While no one would disagree with the latter assertion that the age group 0-6 needs to be cared for seriously and sincerely, the fact remains that a perusal of the Constituent Assembly debates; prior to adoption of Article 45; clearly indicates that the intent was 6-14 years only. However, the focus of the national concern is the fact that the goal set before the nation even if interpreted in terms of 6-14 is still remains only a fond hope and a cherished desire.

The great educational thinker and planner, late Shri J.P. Naik, had in initial stages made a calculation regarding the inputs necessary to achieve universal elementary education (UEE). His inference was that for a population of 34 crores, the amount required to achieve UEE would get multiplied by 16 times if the goal is not achieved and the population gets doubled. This is sufficient to indicate the magnitude of the multi-fold expansion of the problem which has defied solution over the last four decades.

After the initial target date of 1960 was over there was a clamour for looking into the status of education in the country and the report of the Education Commission (1964-66), popularly known as Kothari Education Commission, is a landmark in the developments in this country. The Commission recommended initial education of 10 years for all children. For the first time it was accepted that science and mathematics should be learnt by all children including girls. The National Council of

Educational Research and Training (NCERT) came forward with a national curriculum framework for ten-year schooling which gave the essence of the objectives, thinking and ingredients of the curriculum that were considered appropriate to prepare the citizens of tomorrow fully equipped with scientific temper, social consciousness and values necessary to provide humanistic, moral and ethical qualities. The entire country slowly adopted the pattern of the school education recommended by this Commission.

Subsequently, there were other reports like Education of Our People prepared at the instance of late Shri J.P. Narayan and report of another Committee headed by Shri Ishwarbhai Patel. New thrust in such developments came in the form of National Policy on Education (NPE), 1986. This was characterised by the Central Government coming forward in a big way to assist the State Governments through centrally sponsored schemes in several areas which include elementary education and teacher education. By this time people had almost reconciled to the situation that the targets of universal elementary education are focussed only to be shifted to a later date. This for the educational planners and administrators was a very disturbing element of the total scenario. NPE gave new strategies and provided fresh motivation and hope of achieving universal elementary education. New initiatives in adult literacy has provided new experiences which have direct linkages to elementary education.

The Total Literacy Campaigns launched in several districts have provided some very revealing insights into the potentialities of community involvement in achieving universal elementary education. There are districts covered by Total Literacy Campaigns where enrolment in primary schools has gone up by 25%. There has been a considerable reduction in the dropouts. The stage is ripe to utilise these developments to the maximum. At the same time, the possibilities of alternative strategies that focus on elementary education itself need to be explored. The Kerala experiment has raised a very pertinent question as to why it cannot be repeated elsewhere. The contrast between Kerala and say Bihar is well-known. However, this need not deter the planners from exploring alternative strategies for Bihar itself. It is being attempted in the form of Bihar

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Education Project, which takes specific note of the needs not only of the State but at the district and block level as well.

Planning for universal elementary education has to begin at the local level. It has to be the grassroot level unit; a village, a habitation or a particular slum. The members of the community need to be brought together with their perceptions of the need for basic education, their apprehensions, their limitations and the extent of their possible inputs. These factors are essential to plan a workable strategy which would, probably, ensure the participation of all children in the process of basic education. In one of the studies conducted at block level in M.P. all the parents of children in age group 6-14 years were contacted. All children whether in school or outside the school were also approached. Parents of 24% of the children who had dropped out gave irregularity of the school functioning as the cause of their children not reverting back to school. 17% parents after a period of two or three years found that their wards had not learnt anything. Hence, they withdrew them from the school and put them to some 'useful work'.

This brings to focus the important aspect of elementary education – the working children. There are different estimates and definitions.

The girls constitute the largest category in this group and have to stay at home to look after the siblings, attend to household chores, fetch water, fuel, fodder, etc. In spite of the 1976 Act abolishing bonded labour it continues to be a sad reality. Children are still engaged in activities like carrying headloads, rag pickings, working in shops, restaurants and other such establishments apart from assisting parents in their professions. In the age-group 6-14 years the estimated population is around 16 crores. Safely one fourth of these are working children. The 1986 Policy on Education stipulated non-formal education for such children who are not in a position to avail of the formal-school facilities even if these exist within their reach. The programme needs to be strengthened and expanded. It also appears to be the only strategy that can bring a large number of girls and other working children to the field of elementary education. This should not be treated as a failure of formal school system but a consequence of the existing socio-economic situation. Non-formal education needs to be persisted with as a system of learning at elementary education stage for many more years in this country.

Much has been said about teachers and all of it is not always complimentary. This outlook requires a big

change. Teachers normally are not provided with any of the teaching/learning material. At elementary stage some of the teachers may never have seen even the syllabi they are supposed to transact. They are fortunate if they receive the textbooks on time. In-service education programmes do not reach teachers even over a period of 15 to 20 years. While we change curricula and strategies, we do not equip the teacher to accept the changes much less absorb. Massive programmes for in-service education of teachers should be launched and continued. Once the teacher is confident and he realises the significance of his tasks, he is capable of contributing much more. Restoration of his dignity is a pre-requisite for tangible attainments in universalising elementary education. The recent initiatives of 'Operation Blackboard' which intend to equip the schools in terms of basic infrastructure facilities and teaching learning materials need to be utilised to the full. The establishment of District Institutes of Education and Training will go a long way in improving the quality of basic education. More institutions for teacher trainees at elementary stage will have to be developed in the near future.

Essentially the strategy has to be to go to the community, receive their perceptions and persuade them to accept their responsibilities in education. Once this happens, the system is bound to work effectively and efficiently. The State will continue to play its part but small irritants, shortcomings can always be looked after by the community. The school has to become a neat and clean place which provides an environment that attracts the children and retains them. A small beginning throughout the country by say organising bimonthly meetings in every school of the total community including parents and children could go a long way in establishing a mutually satisfying relation. In these meetings children could recite poems, stories, play games and a sense of satisfaction that parents would receive would be worth watching. Is it not the time to launch a nationwide programme that intends to change the environment of the elementary school? Neat and clean place, children decorating it utilising skills learnt from locals, members of the community contributing in repairs, maintenance and other catering to other needs of the school. Teacher guiding through participatory learning activities and finally; children unwilling to leave the school premises even after the last bell proclaims that it is time to go home. With this new school we can easily expect to greet the 21st century where no child will be out of school, where no adult is illiterate and where no one is unemployed.

Evaluation of University Teachers

Ramesh K. Srivastava*

Indian bureaucrats are many times pennywise and clumsy in parading fascinating ideas in distasteful and ugly-looking containers as they had shown in linking the evaluation of university and college teachers with the proposed seven-tier pay-structure (now reduced to three) and which had precipitated a month-long, nationwide teachers' strike. The idea of evaluation of university and college teachers in itself is not bad; its presentation was.

The concept of evaluation has been borrowed in bits and pieces from the United States where course evaluation is done every quarter or semester by university and college students through objective-type questions on a multi-point scale ranging from "Excellent" to "Poor." The questions usually relate to the adequacy of course work, the instructor's competence in explaining the subject and in stimulating independent thinking, the extent of help by assigned reading material, the degree of interest of students aroused in the course, the level of teacher's classroom performance, and whether the course could be recommended to others. Detailed comments, wherever needed, are given by students on the reverse side of cards which after being processed by the computer and published in a book form, are sent to the course instructor. The evaluation book becomes a guide to new students to choose different courses.

In some American universities, the evaluation of course work, including that of teachers, is done in a very comprehensive way. The questions numbering between fifty and one hundred are quite detailed and cover every aspect of coursework and teacher. Some of them are pointed, sharp, and troublesome by being related to even such seemingly insignificant points as the teacher's punctuality in coming to the class, the duration of his classroom teaching, his late arrivals and early departures, his method of presentation, the extent of his knowledge on the subject, his attitude to classroom discussion and his openness to new ideas, among others.

Though a few Americans and most Indians criticize course evaluation as a "popularity context," serious teachers everywhere accept the challenge and welcome it. For an evaluation, if carried out fairly and objectively,

is a mirror that reflects the teacher in his true colours, showing both his strong and weak points as also the possibilities for improvement. A teacher needs periodic feedbacks from the students as does a salesman from his customers. A good teacher must know the throb and pulse of his students; he must be capable of projecting himself into their personality on which his success depends. This is what evaluation does; this is what facilitates good teaching.

If evaluation of teachers is so good, why is there so much opposition to it from university and college teachers in India? Why was this considered a negative feature of Mehrotra Committee Report? To begin with, it is an excellent example of arrogant salesmanship of bureaucrats who, by forcing the evaluation down in the gullet of university teachers, wanted to show that they are the real rulers. Had each university been asked to devise its own course evaluation after involving its teachers, something would have come out of it. Now even the baby has been thrown away with the dirty bath. Besides, the term "course evaluation", used in India, because the latter gives a dreadful and repugnant impression that the teachers are to appear for a test before their students. In the society where teachers have been equated to God since ancient time, such a proposal is bound to arouse antagonism. In the U.S.A., the course evaluation is synonymous with evaluation of teachers because it is the same teacher who devises a course, selects topics, suggests textbooks and reading material, teaches the course, gives tests, and awards final grades. The teacher is all in all from the planning of course work to the award of grades. But not so in India where the planning of a course, its approval, recommendation of textbooks, classroom teaching, setting of question papers, conduct of examination and award of marks or grades are done by different sets of teachers, one teacher associated with one aspect of coursework many times having nothing to do with another. The evaluation of any teacher under these circumstances would have meant passing judgement on him in totality for a fraction of his duty confined to classroom teaching while he might have absolutely nothing to do in framing the coursework, in admitting students or in giving grades. To evaluate a teacher merely on the basis of his classroom performance would be as illogical as to evaluate a physician in a rural dispensary without taking into consideration the availability of facilities for diagnostic

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tests, the trained staff, surgical instruments and essential medicines as also civic amenities and hygiene in the area. Worse still, this incomprehensive and faulty teacher evaluation was to be made the basis of the seven-tier pyramid of pay-structure in place of the traditional three-tiers—Lecturer, Reader, Professor—for the illusory aim of bringing improvement in teaching and research.

The entire system in the country is so much punishment-oriented that for a teacher or for any employee, an award of Nobel Prize might bring no benefit beyond an annual increment, but a small technical slip is bound to invite punitive action. Each evaluation, as such, could provide the administrator a new opportunity for exploitation of the teacher. The seven stages in the pay-structure with seven in-built evaluation reports would have meant seven different hells through which each teacher would have been required to pass by blunting his conscience, suppressing dissent, transforming himself into a yes-man, and by cringing servilely not only before the Vice-Chancellor, the Management and the Principal but also before his students in order to get a favourable valuation report.

In American institutions, the course evaluation committee goes with the assumption that the students have definite goals of learning, are strongly motivated, pay an enormous amount of tuition fees and are capable of judging the quality of instruction they receive. Thus they can measure the level of achievement in any class by keeping in mind the goals set out by the instructor as well as by the students. Since the students are affected by the performance of teachers at all levels between the framing of course work and award of grades, they have the right to evaluate their mentors in the same way a consumer puts to test the advertised claims of a manufacturer about any merchandise. In India, a very large number of students are not capable of objectively evaluating a course because, leaving aside the course teacher, they themselves do not have well-defined goals. How serious are their studies can be seen from the answers they give when asked about their aims and objectives. A college student wanted to have a B.A. degree in order to be entitled to a B-type jail! A girl worked for M.A. in English because I.A.S., I.P.S. and Army Officers go in for English-speaking girls as wives. Quite a few students work for Master's degree in more than one subject because they want to improve their matrimonial chances dimmed by unemployment. What course or teacher evaluation can be done by such unmotivated students and what validity would it have?

If the students are unmotivated, the teachers are no better. The proliferation of education and unplanned

growth of college and universities have brought the standard of higher education to a deplorably low level. The saying about teachers—one who can, does; one who cannot, teaches—has never been more relevant as now. Having failed to secure good jobs in administrative, police and banking services, the degree holders turn to teaching jobs in the last resort and once comfortably perched there, they, in frustration, narrow their goals to mechanized teaching in classrooms. They rationalize that the teacher's duty is confined to the classroom teaching, since his liking or disliking of a particular class, text or group of students has no place in it. The students, similarly, are interested not so much in learning as in getting degrees and diplomas with good grades on which depend their careers and ways of life. For such students, a conscientious teacher, a good disciplinarian or a painstaking researcher by virtue of his demanding nature is likely to be rated poorly whereas an unscrupulous teacher who helps students in attendance, practicals and internal assessments even with the use of unfair means can be sure of getting the best evaluation report. Ad hoc and temporary teachers whose confirmation depends on good evaluation reports are bound to be exploited by such students. In addition, associations and groups of teachers afflicted by rivalry and jealousy, bickerings and backbiting, political and caste-based alliances, limited promotional avenues, and undesirable activities of stooges planted by the management plague teaching community so much that some unscrupulous teachers often in league with students torture and harass conscientious teachers who don't come to their non-academic folds. Hence the ghost of teacher evaluation can cause many sleepless nights to the genuinely motivated teachers.

The accountability of teachers is another point on which evaluation has often been justified. Had the principle of accountability been tied with the revision of pay scales in other services or departments, the university and college teachers would have been the first to accept it. But who is accountable in this country? Is the Education Minister accountable to educators; Ministers, MPs and MLAs to their constituencies, physicians to patients, judges and lawyers to litigants, administrators and policemen to civilians, government employees to people? If not, how can this discriminatory condition be laid on the teachers alone? How can a teacher be accountable to students who are admitted by someone else on considerations other than merit, for teaching a course not devised by him and being held responsible for poor grades of students when he had neither examined nor evaluated answer books? No talent can be nourished by the iron rod of accountability alone, nor can research be promoted by creating multiple stages

for promotion. The net of accountability, so complex and politicized, might facilitate a smooth passage to habitual shirkers but is bound to catch conscientious teachers in it unless accompanied by adequate in-built safeguards. Many good teachers have often been bridled, silenced and coerced into toeing the line of administrators by this repugnant device of accountability. In the hands of politicians, administrators, bureaucrats and pseudo-academics, evaluation of teachers can be a discredited multi-toothed rein to check, restrain or subjugate the impetuous horses among the teaching community.

However, evaluation of teachers, or better still, course evaluation has some positive points which should not be lost sight of even in the prevailing gloomy educational situation. In order to improve higher education, a beginning must be made somewhere. Since most universities and colleges in the country have implemented U.G.C scales, good enough to attract the best talents, it is necessary that other steps be taken to see that those who are genuine and conscientious be given some recognition and the unscrupulous ones discouraged from extending their hold over others. To

achieve these objectives, course evaluation must be undertaken among select university teachers on a voluntary basis with no punitive clauses. It must be conducted like a surprise test by a non-political, voluntary organization after explaining to students that the purpose of evaluation is both to raise the standard of education and to eliminate drawbacks which have harmed them. Teachers who voluntarily agree to a comprehensive evaluation can be given good publicity within an institution and at the same time other measures can be taken to popularize the system. Since the comprehensive evaluation will also be inclusive of courses, textbooks, examination papers, and grading system, relevant results concerning each aspect can be sent to the concerned branches. Meanwhile, steps could be taken to give more role to teachers in framing their courses, admitting students on merit, selecting books and topics, equipping laboratories and libraries, participating in refresher courses, conferences and seminars, evolving their own tests and examinations, and in awarding the grades so that the evaluation system, clumsily adopted from the western world, would not become a painful exercise in futility but quite useful for the improvement of higher education in the country.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be Contacted
March 9-15, 1992	International Conference on Experiential Learning	To promote experiential learning and other scientific, educational, cultural and related activities and spiritual pursuits	Indian Society for Experiential Learning, Pondicherry	Prof. S. Mohan, Prof. of Physics, Pondicherry University, Pondicherry
August 26-28, 1992	Second International ISKO Conference on Cognitive Paradigms in Knowledge Organisation	To provide a forum for scholars working in the field of knowledge organisation	Madras Library Association in collaboration with Sarada Ranganathan Endowment for Library Science and University of Madras	Mr. S. N. Kumar Conference Secretariat, 5, Sivaganga Road, Madras-600 034
October 26-31 1992	Third IAU Mid-Term Conference to be held at Alexandria, Egypt	Theme: Adaptation of University Management Structures and Strategies for New Requirement	International Association of Universities (IAU), France	Dr Franz Eberhard, Secretary General, International Association of Universities, 1, rue Miollis, 75732 Paris Cedex 15 France
November 9-13, 1992	16th World Conference on Distance Education for the Twenty-First Century	To give a view of the aspects of development in Distance Education in the Twenty-First Century	International Council for Distance Education, in cooperation with Sukhothai Thammathirat Open University (STOU), Thailand	Mr. Bruce Scriven, Program Chair - 16th World Conference of ICDE, Queensland University of Technology, Locked Bag No. 2, Red Hill Queensland 4059, Australia

Management Education and Literature in India

M/s Wiley Eastern Limited. (WEL), New Delhi, Publishers, in collaboration with the Indian Institute of Management, Lucknow (IIML), organised a one-day seminar on "Management Education and Literature in India" on December 1, 1991, at the Indian Institute of Management, Lucknow. The seminar attended by over fifty distinguished management professionals from academics, industry, government and the publishing trade was inaugurated by Prof. Ishwar Dayal, eminent management scientist and founder Director of the IIML, who also delivered the keynote address on the theme "What is Indian in Indian Management Education". The seminar provided an opportunity to the participants to share their practical experiences about the problems and prospects of Indian experience-based literature to support management education in the country. Delivering the keynote address, Prof. Dayal pointed out that there was a deluge of literature in practically every branch of knowledge including science, technology or management but what was lacking was quality. Dwelling at length on the managerial culture and style in India, he emphasised that it was markedly different from the western countries. This was on account of the differences in the culture and environment of these countries, he said and added that it was up to the management professionals to take what was good in the western managerial styles and adapt it to the Indian context.

Speaking on management education and literature in India, the speakers pointed out that interna-

tionally this debate had been fuelled by the emergence of indigenous modes of management in Japan, S.Korea, Singapore, China and the European countries. Closer at home, over 25 years of experience with formal management education had produced a great deal of scepticism about the relevance of management approaches which had evolved in significantly different technological, economic, social, political and cultural environs.

The theme session was followed by two panel discussions on four functional areas of management viz : Finance; Marketing; Production/ Quality Management and Organization Behaviour/ Development.

Summing up the deliberations of the seminar, Prof. Dayal remarked that keeping in view the present policy initiatives to integrate the nation's economic systems with the global economic system, it was imperative to evolve management thought firmly rooted in Indian reality. Provision of management literature should serve the twin purposes of facilitating generation as well as dissemination of managerial concepts most appropriate to the Indian context.

Refresher Course in Arabic Prose

"The Development of Arabic Prose from the Jahiliyyab period to the modern times" was the thrust area of a Refresher Course in Arabic conducted by the Department of Arabic and the Academic Staff College of the University of Calicut from October 21 to November 13, 1991. The course was inaugurated by Dr. T.K. Raveendran,

the Vice-Chancellor. Dr. S.E.A. Nadvi, Head of the Department of Arabic and an eminent Arabic Scholar presided over the inaugural function.

The topics included the origin and growth of Arabic language, development of prose during early Islamic and Ummayyad periods, the Holy Quran, Uloomal Quran, Hadit and Khitab, development of prose during Abbasid period, translation movement, prose literature after Mongol invasion, prose in Spain and development of prose in modern period. They also covered Islamic movement and thinkers, literary criticism and journalistic development. The course stressed on methods of language teaching with special reference to Arabic.

Every participant was required to prepare and present a paper on some selected aspect of Arabic prose. The presentations of the papers were followed by lively discussions. Video films on the linguistic literary and historical aspects of the thrust area were shown. They were also given an assignment on critical writing in Arabic, either as a poem or short story or a news feature.

A study tour covering two important arabic institutions – Madeenathul Arabic College, Pulikkal and Islahiyyah College, Chendamangalur – was also conducted. The participants were also taken on a visit to eminent scholars, Sri N.V. Abdussalam Moulavi and Sri Vaikom Mohamed Basheer.

A notable feature of the course was that the entire proceedings were conducted in Arabic.

Twenty three teachers from the Universities in Kerala, Tamil Nadu

and Assam participated. Dr. E.K. Ahmed Kutty, Professor of Arabic coordinated the course.

Hindu Astronomy is Pre-Vedic

A study conducted by the Physics Department of the Punjabi University, Patiala, reveals that the parameters of ancient Hindu Astronomy originated from the pre-Vedanta tradition. It notes that kinematics of heavenly bodies intermingled with the rotational diurnal motion of earth, which is in conformity with the parallel values in later texts, refutes the hypothesis about the "Vedanta Jyotish" from Greek and Babylonian traditions.

According to Dr. Shakti D. Sharma, who conducted the study, the Western scholars believed that the parameters of Indian astronomy originated in Greek tradition. Some went to the extent of even proving the hypothesis that "Vedanta Jyotish" originated in Babylon.

"The later schools, preserved in the Sruti tradition, descended to us through Vedic-Puranic literatures, Jaina-Buddha traditions, Panca-siddhantika and other encyclopaedic works like "Brahtsamhita- Vasistha Samhita,"he said.

Reports on motions of heavenly bodies, found in most traditional naked-eye observational records, appeared absurd to present-day astronomers. But they were true natural observational reports of the kinematics of heavenly bodies intermingled with the rotational diurnal motion of the earth. It may have taken thousands of years to separate the various motions in those primitive stages of developments of astronomy, the study observed.

Society for Environmental Education

The Bharathidasan University, Tiruchirapalli, proposes to form an environmental co-ordination committee in its area by inviting representatives from governmental and non-governmental organisations of Tiruchirapalli, Pudukottai, Thanjavur and Nagapattinam districts to solve the existing and forthcoming environmental problems on joint-action basis. This was disclosed by Dr.S. Muthukumarn, Vice-Chancellor of the university while inaugurating the Society for Environmental Education (SEE) Chapter at Perambalur recently.

Dr. Muthukumaran in his inaugural address said that though many organisations were now involved in environmental activities, there was a lack of coordination among them. He said that particularly in the activity like environmental protection and conservation, a periodical joint meeting was necessary to exchange information, identify major problems and draw action plans. The university would arrange to hold such meetings this year as part of its extension activities, he added.

In his keynote address, Dr.S. Srinivasan, SEE General Secretary, said that the proposed 1500 MW Super Thermal Power Station at Jeyamkondam in Tamil Nadu might pose serious problems on environment owing to the fact that the available lignite in the areas contained about 40 percent of ash content which has to be disposed in an environmental acceptable manner.

Dr.K. Varadarajan, Correspondent of Roever Educational Institutions in his presidential address said that the brain fever in Perambalur and adjoining places had now become the yearly phenomenon and this had to be curbed.

S. S. Bhatnagar Prizes Awarded

The Human Resource Development Minister, Mr. Arjun Singh, called upon scientists to help provide rational approaches to the problems facing the country. This could help bring about a meaningful change in the atmosphere in the country, said Mr. Arjun Singh while giving away the prestigious Shanti Swarup Bhatnagar Prizes and the Council of Scientific and Industrial Research Technology Awards in New Delhi recently.

While scaling new heights in science and technology, scientists cannot remain unconcerned with social and other problems, he said. He also called for an accelerated pace of research in the field of agriculture, particularly in the oil seeds and pulses sector.

The Minister gave away the CSIR and Shanti Swarup Bhatnagar Prizes for 1990 and 1991 to 22 scientists and the CSIR technology awards to three research teams from Pune, Hyderabad and Dhanbad. Each Bhatnagar award, given to scientists below the age of 45, carries a citation, a plaque and a sum of Rs.50,000.

The Bhatnagar prizes in biological sciences went to Dr. S.K. Brahmachari of the Indian Institute of Science, Bangalore, Dr. V.N. Pandey of the Bhabha Atomic Research Centre, Bombay, and Dr. S.K. Saidapur of Karnataka University, Dharwar.

The chemical sciences prize went to Dr.B.M.Choudary and Dr.J.S. Yadav of the Indian Institute of Chemical Technology, Hyderabad, Dr.N.Satyamurthy of the Indian Institute of Technology, Kanpur, and Dr.B.Bagchi of the Indian Institute of Science, Bangalore.

The engineering sciences prize went to Dr. S.K.Pal of the Indian Statistical Institute, Calcutta, Dr. Gangan Prathap of the National Aeronautical Laboratory, Bangalore, and Dr. J.B.Joshi of the University Department of Chemical Technology, Bombay.

Dr. R. Balasubramanian of the Indian Institute of Mathematical Sciences, Madras and Dr. S.G. Dani, Dr.V.B. Mehta and Dr. Annamalai Ramanathan, all three from the Tata Institute of Fundamental Research, Bombay, got awards for mathematical sciences.

Two researchers, Dr. M.K.Bhan and Dr. Shashi Wadhwa, from the All India Institute of Medical Sciences, New Delhi, received the prize in medical sciences. Dr. Sri Niwas from Kurukshetra University and Dr. Sudipta Sengupta of Jadavpur University received the prize in earth sciences.

The prize in physical sciences went to Dr.G.Baskaran of the Institute of Mathematical Sciences, Madras and Dr.A.K.Sood of the Indian Institute of Science, Bangalore and Dr.D. Dhar and Dr. D. Mathur, both of the Tata Institute of Fundamental Research, Bombay.

The CSIR Technology Awards in biological sciences were given to a five-member team from the National Chemical Laboratory, Pune.

Dr. A.F. Mascarenhas, Dr. R.S. Nadgauda, Dr.S.S. Khuspe, Dr.R.R. Hendre, and Mrs. V.A. Parashrami, received the prize for their contributions in plant tissue culture.

The prize in chemical technology went to Dr.A.V. Rama Rao, Dr.M.K. Gurjar and Dr.M.N. Deshmukh of the Indian Institute of Chemical Technology, Hyderabad, for innovative process routes for essential drugs.

The prize for materials technol-

ogy was presented to Dr.S.N.Mukherjee, Dr.S.K.Majumdar, Dr.S.K. Das Gupta, Dr.A.K.Moitra and Dr.A.Lahiri for their development of technology for building fly ash bricks.

Education-cum-Development Centre

Jagadguru Shankaracharya of Kanchi Kamakoti Peetham, Sri Jayendra Saraswati, is reported to have announced the setting up of a university-like multi-crore education-cum-development centre at the religious city Kancheepuram in Tamil Nadu. Addressing the devotees at a function in Thane (Maharashtra) the Shankaracharya said that the project called "Ghatikasthanam," which means a centre for cleaning the doubts, had already started receiving funds from a large number of devotees and he hoped that it would multiply following his on-going tour to this State.

He said about 100 acres of land for the education-cum-development centre, which will be called "Sri Adi Sankaracharya Sarvajna Vidya Peetha," had already been acquired and the project to be completed by the end of 1993 would be executed in three phases.

Giving details of the lessons to be taught in the university, the Shankaracharya said that the Centre would impart education in the six Vendangas — Siksha (phonetics), Nirukta (etymology), Vyakarana (grammar), Chandas (prosody), Jyotisha (astronomy-cum-astrology) and Kalpasutras (knowledge of practice of sacrifice and rituals). Besides this, Pathasalas (educational institutions) for studies of Rig, Yajur, Sama and Atharva Vedas and for the study of Ayurveda, Dhanurveda, Gandharvaveda and Arthashastra would also be started in the premises.

He said that a large library of valuable books and manuscripts in Sanskrit and other languages would also be maintained, which would also have a well-equipped printing press and a publication wing, besides a cultural museum.

Distinguished Alumni Award Scheme

The Indian Institute of Technology, Delhi, invites nominations for the award of a Distinguished Alumni Award Scheme which has been started recently to honour the alumni of this Institute in recognition of their conspicuous achievements and outstanding contributions to academics, business, profession and/or public service. The award would be in the form of a silver plaque of the Institute and a citation. It will be awarded at the annual convocation of the Institute. The eligibility criteria and other information of the scheme as approved by the Board of Governors (BOG) are asunder:

All alumni who have been awarded a degree or a diploma of I.I.T., Delhi, will be eligible for the award.

The nominations for the award may be made by the alumni and/or faculty members of I.I.T., Delhi. Each nomination should have a proposer and a seconder who should submit brief particulars of the nominee and a statement on his/her achievements and contributions on the basis of which the nomination is made.

The last date for nomination will be 31st December each year.

The nominations for the award will be processed through following two Committees:

- (i) Screening Committee consisting of Dean of Students (Chairman), President of Alumni

Association, and Faculty Adviser of Alumni Association and two faculty members of the Institute nominated by the Director.

- (ii) Award Committee consisting of eminent educationists, eminent jurists and the Director of the Institute, appointed by the Board of Governors.

All nominations received by the last date will be considered by the Screening Committee. After initial short-listing the Screening Committee will obtain from the nominees their bio-data in a prescribed proforma, including a statement of their achievements and contributions, and the names and addresses of three referees intimately familiar with their work. The Committee will obtain the reports of the referees and may also obtain the recommendations of peers in India/abroad, identified by it in each case. The Committee will make its recommendations for the award along with a citation in each case by 30th April each year.

The recommendations of the Screening Committee along with the particulars of the nominees will be considered by the Award Committee. The Award Committee will make its recommendations to the Chairman, Board of Governors for approval on behalf of the Board.

The awardees will be treated as Institute Guests when they come to the Institute to receive the award.

ILA Calls for National Information Policy

The 37th All India Library Conference of the Indian Library Association concluded recently in Madras called for the adoption of a National Information Policy to coordinate the activities in different

sectors such as agriculture, industry, science and social sciences research. It made a plea for the creation and maintenance of a broad database facility to accommodate the totality of information needs of the users and to provide computer facilities for rapid information retrieval and dissemination services.

Other recommendations included the developing standards in design, hardware and software necessary for switching compatibilities among the information networks and the setting up of a national institution named after late Dr. S.R.Ranganathan, the father of library science in the country, to developing standards for curriculum at various levels of education, provide continuing education facility, and for promoting a two-year integrated master's programme in information science.

IIT/AIIMS Research on Sterile Contraceptives

The Centre for Biomedical Engineering, IIT/AIIMS, New Delhi, which has internationally pioneered the field of Bio-engineering in Reproductive Medicine developed evaluation methodologies which markedly reduced the clinical trial period for all sterile medical contraceptive devices which are placed inside the human body. These are being imported into India. Besides the technical know-how issues, acceptance of even known implantable devices requires long clinical trial. Also the Centre advised industry on manufacturing problems and enabled the Bureau of Indian Standards to set the norms. A Ph.D. research with follow up led to the formulation of an IITD Standard on which the BIS standard was based. It is the first standard for the particular implantable medical device internationally.

The Ministry of Health and Family Welfare has acknowledged the contribution of IIT. The Government, it is understood, has been able to place orders for Copper T on two Indian firms which are beginning production of Copper T for the first time in India. The initial supply of 2.5 million Copper Ts will save for India three million dollars in foreign exchange.

The programme has been developed by a team comprising Prof. Sujoy K Guha who is an engineer and a medical doctor, Prof. Sneh Anand, Dr. Ganpat L. Jain, Dr. S. Ansari and Dr. Veena Koul with the valuable support of Sh. Ayodhya Prasad, Mrs. Archana Bansal, Sh. Dev Dutt Sharma and Sh. Karan Singh.

With the approval of the Parliament the Drugs Controller of India has notified the Centre for Biomedical Engineering of the Institute as the National Statutory Centre for the assessment of two major implantable contraceptive medical devices, the Copper T and Tubal Occlusion Ring. Both of these critical class sterile medical devices must undergo evaluation in the Centre prior to use in India.

ONGC Scholarships for SC/ST Students

The Oil and Natural Gas Commission (ONGC) is reported to have come out with a scholarship scheme for the benefit of Scheduled Caste/Scheduled Tribe students.

The scheme is meant for full-time students of second year graduate Engineering courses and first year students of post-graduate courses of Geology/Geophysics and Business Administration/Management courses.

Students enrolled for such courses in Central and State Govern-

ment recognized educational institutions should have secured a minimum of 6.5 grade points out of 10 or equivalent.

New Courses at Journalism University

The Makhanlal Chaturvedi National University of Journalism proposes to start three new courses from the next academic year. These include, separate Master's degree course in Journalism and Public Relations, as well as a postgraduate diploma course in Rural and Tribal Communication. The medium of instruction shall be Hindi and the admission will be made on an all-India basis.

Besides, a three-month part-time evening course in Press Laws and a six-week diploma course for rural journalists will also be started from next academic year.

Honda Prize for M.S. Swaminathan

Dr. M.S. Swaminathan, an eminent agricultural scientist and President of the International Society for Mangrove Ecosystems, has been awarded the 1991 Honda Prize for his leadership role in the solution of Asia's food problems. Instituted by the Honda Foundation to promote harmony between nature and technology, the prize carries a cash award of ten million yen (about Rs.18 lakhs).

Dr. Swaminathan, former Director-General of the Indian Council of Agricultural Research (ICAR) and subsequently Director of the International Rice Research Institute (IRRI) in Manila, was mainly responsible for pioneering the rice revolution in India.

Dr. Swaminathan was cited in the Honda Foundation announcement for his leadership during the "green

revolution" which averted a deep food crisis in the Indian sub-continent in the sixties and early seventies. He is involved with the preservation of the world's mangrove forests and has been active in the field of international environmental projection.

Dr. Gopal Singh Chair

A chair in the memory of late Dr Gopal Singh in the field of comparative Indian literature is to be established at the Jawaharlal Nehru University. A proposal to this effect has been accepted by the Academic Council of University. A memorial lecture at the School of Languages of the University will also be held.

Visiting Professor

Prof. E.U. Schlunder, Institut fur Thermische Verfahrenstechnik Universitat Karlsruhe, Germany, is visiting Indian Institute of Technology, Madras, during December, 1991 - January 1992 under DAAD Programme. Prof. Schlunder is an expert in Heat and Mass Transfer and Chemical Processes. He will be delivering some special lectures and will be available for discussion with research scholars. For further details, please contact Prof. S. Srinivasa Murthy (RAX 3702), R & AC Laboratory, Mechanical Engineering Department, IIT, Madras.

World Bank Scholarships

The World Bank has several programs available for advanced study. One is the Robert McNamara Fellowship program, which provides 10 scholarships each year for a period of 12 months. Contact the McNamara Fellowship Office at the World Bank, 1818 H St. NW, Washington DC 20433. The Bank also offers Graduate Scholarships which cover full tuition and a living allowance. For details contact the Graduate Scholarship Program at the World Bank.

Computer Centre at Gulbarga University

Shri Veerappa Moily, Education Minister of Karnataka, recently inaugurated the Computer Centre at Gulbarga University. The Computer Centre will cater to the needs of the students of the Master of computer Application (MCA) course recently started by the University. The Centre has been established at a cost of Rs. 35 Lakhs drawn from the Hyderabad-Karnataka Development Board funds, allocated to Gulbarga University.

Shri Moily, in his inaugural address, stressed the importance of computers in all walks of life. This is a computer age, he said, and with this training, the students of Gulbarga University could face competition anywhere in the world.

Shri Dharma Singh, State Home Minister, in his presidential address expressed his satisfaction over the all round progress made by the university in such a short period of time. He recalled the efforts of various people in establishing this university and assured all help from the Government for its further development. The Minister also released the university's first newsletter.

Prof. N. Rudraiah, Vice-Chancellor, in his brief report traced the history of the university and said that the university was concentrating on job-oriented courses. Courses like MCA, Pharmaceutical Chemistry and Biotechnology have already been started. There is a plan to start an Institute of Applied Social Sciences, a unique institute and first of its kind in Karnataka and an Institute of Business Management. He also said that the university would soon have satellite hooking for the Library.

Training for Rural Development

"The issue of technology development is vital because the technology is the major input in the development process and it forms the core of all extension efforts. In spite of the large number of research projects completed every year, the proportion of conversion of the research findings into sustainable technologies is very limited. The process of conversion of research into technologies need to be properly managed so that the benefits of research reaches the farmers", said Dr. P.N. Mathur, Assistant Director General (Extn), Indian Council of Agricultural Research (ICAR), while inaugurating a seminar on "Training for Rural Development : Prospects and Retrospects" organised recently at the Konkan Krishi Vidyapeeth, Dapoli, under the auspices of Maharashtra Society of Extension Education. According to him, "At present this is not happening. In my view, we have to carry the research to the farmers' fields and involve them in the process of technology development. The concept of on-farm research and use of farmers' wisdom are parts of this much needed process". Dr. Mathur also emphasized the need for preparing the extension agents for proper dissemination of the technologies and developing the human resources for the agricultural development. He stressed the importance of training and taking the review of various training approaches and said that the Krishi Vigyan Kendra (KVK) model had effectively served the purpose in the past as against other systems. Therefore whosoever takes up the role of farmers' training, the KVK model was needed to be adopted. Dr. Mathur called upon the scientists to use innovative train-

ing methods to make the training sessions interesting, useful and effective.

Dr. S.B. Kadrekar, Vice-Chancellor, Konkan Krishi Vidyapeeth, who presided over the inaugural function, explained the importance of extension training and said, "for effective transfer of technology the trained extension workers having missionary zeal need to be recruited in the extension system. For this, the candidates be equipped with training prior to recruitment and also during their service tenure. It is very much necessary that the scientists as well as the extension workers should have full faith in the technologies to be disseminated. Without this the extension workers will not be able to motivate the farmers for adopting the modern technologies".

Mrs. Kanta Kapoor, Joint Director (WP), Ministry of Agriculture and Cooperation, Government of India, in her address highlighted the role of women in agriculture and emphasized the need for imparting training to the rural women. She also narrated the efforts being made by the Central Government for the upliftment of rural women.

Over 100 extension scientists from different parts of the country participated in the seminar. The seminar was divided into six technical sessions at which over eighty papers were read on different aspects of extension training.

National Quality Institute

The Quality Management International will set up a National Quality Institute at Shimla at a cost of Rs.10 crore. This was stated by Dr. Madhav Mehra, President of the

Worldwide Quality Management Network in Palampur recently. He said that the institute would go a long way in creating a quality culture in the country and ensuring that the products manufactured conformed to the specifications laid down by the International Standard Organisation (ISO 9000).

Dr. Mehra, who also delivered the keynote address at the three-day workshop on team work for total quality which was organised at Palampur, said the present economic crisis was there only because the country, despite having the largest pool of scientists, technicians, statisticians and management experts, had failed to produce items comparable in quality to the products of other countries. The fact, India's share in the world market was just 44 percent, much smaller than tiny countries like Taiwan and South Korea. Even in traditional products such as leather, tea, garments and iron ore India's share in the export market was no more than one percent.

The concept of total quality culture (TQC), which had picked up in the USA, Britain and other developed countries, focussed on the performer and not the technique and helped in harvesting the inherent potential of every individual. Only workers bound together by a common vision, values and language constituted an effective team. Without team work no technology howsoever superior could succeed.

Earlier inaugurating the workshop, Dr. Kirti Singh, Vice-Chancellor of the Himachal Pradesh Krishi Vishwavidyalaya, said the use of team approach to problem solving had many advantages as it helped in tackling thorny issues.

Sports News

Inter-Varsity Table Tennis Championship

The North Zone Inter-University Men and Women Table Tennis Championship was recently held at the Dr.Y.S. Parmar University of Horticulture and Forestry, Nauni(Solan). Jointly organised by the Association of Indian Universities and the Dr.Y.S.Parmar University of Horticulture,Solan, the championship was inaugurated by Shri Radha Raman Shastri, Education & Sports Minister of Himachal Pradesh. Speaking on the occasion, Shri Shastri called upon the students to take more and more part in sports activities for the development of healthy body and mind. He said that the selection of the candidates for national and international level should be purely on merit and performance basis and rural youth should also be encouraged to take part in the sports activities. Mr. Shastri said that there was a great scope of winter and water sports activities in Himachal Pradesh. This needed proper planning and execution in the national interest, he added. Dr. B.R.Sharma, Vice-Chancellor of the university, who presided, said that through sports we develop the sense of national integration and discipline in the minds of our youth and make them good citizens of the country. He called upon the students to develop a sense of participation and competition in their minds.

Delhi University clinched the men's team trophy beating Guru Nanak Dev University, Amritsar,3-1, while the latter's women squad emerged as the winners in the women's section beating Panjab University, Chandigarh, 3-0, in the finals.

Meerut University was placed third in the Men's section when they beat Allahabad University 3-0 in the play off.

Delhi University got the third

position in the women's section, beating Maharashi Dayanand University, Rohtak, 3-0. Mr. P.S. Kumar, Inspector-General of Police and Managing Director, Scheduled Caste and Scheduled Tribe Corporation, Himachal Pradesh, gave away prizes.

Over 200 students in 36 teams from 18 universities participated in the championship.

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1.	Mechanical Machine Design & Automation Engineering.	1	—	1
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3.	Instrumentation & Control Engg.	1	1	—
4.	Computer Science & Engineering.	1	1	—
5.	Chemical & Bio-Engg.	1	1	1
6.*	Training & Placement	1*	—	—
7.	Electronics & Comm. Engineering.	—	1	—
8.	Structural Engg. & Const. Mgt. (Leave vacancy for one year)	1	—	1
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10.	Applied Maths	—	—	1
11.	Humanities(Mgt.)	—	—	1
12*	Physical Education	—	—	1

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The details of qualifications and experience required for each post shall be supplied alongwith the application form.

K.K.Dhir
REGISTRAR

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Reforms in Higher Education

I

Please refer to the Late Shri R. S. Dubhashi Memorial Lecture delivered by the veteran economist Professor V. M. Dandekar, Director, Indian Institute of Political Economy, Poona, at the Goa University, and published in your esteemed periodical, *University News*, dated 25th November 1991. Your readers and Professor Dandekar would perhaps be happy to know that Bharatiya Vidya Bhavan successfully conducts throughout the country in its about 45 centres part-time evening courses in the areas of Management, Journalism, Printing, and Computers more or less on the pattern proposed by Professor Dandekar for the last about thirty years. Most of these courses are recognised by the Government of India and various State Governments. High standards are maintained in teaching and learning process and in the conduct of examinations. And we do not have any problem of strikes, go-slows, use of unfair means, etc, by the teachers and students alike. Education is a serious matter in these courses.

S Kumar,
Honorary Director,
Bharatiya Vidya Bhavan,
Zadeshwar, Bharuch
(Gujarat) 392011

II

I am sure, the readers of *University News* (No.47, Vol.XXIX dated Nov.25,'91) must have read with bated breath Prof. V.M. Dandekar's address "Reforms in Higher Education". It is an engaging and thought-provoking exercise in constructive iconoclasm.

It is our unfortunate national canker that there is an inverse ratio between security and efficiency/integrity. As it were, it is a general rule developing in our country that absolute security easily degenerates into absolute indifference to accountability.

Even so, it makes one feel restless to read that Prof. Dandekar feels no qualms for leaving all college teachers at the total mercy of the 'clients'. As if to add insult to injury, a crassly utilitarian philosophy is propounded to a dispassionate eradication of liberal education, while the study of mental and moral sciences is miserably marginalised in Prof. Dandekar's proposed *Academiad*.

As for his permission to charge high fees even for high-utility courses (which are necessarily technical and professional ones) well, no sooner did the Govt. of Maharashtra drop a feeler for such a substantial (but realistic) fee-hike

than the different student unions got busy organising protest morchas and dharnas. It has to be conceded, however, that any benefit or acquisition obtained free loses its value for the beneficiary, perhaps the same way as a young suitor thinks low of the maiden who surrenders too readily!

The present institutions of higher education seem justified on one count that they act as a safety valve without which, one shudders to think what will the armies of able-bodied youths in this country do with their pent up energies. Therefore, college teachers (and Principals) may be looked upon as guardians of social safeties!

So, the entire issue of higher education is a jumbled one and Prof Dandekar's may not be the only solution to it as the solution itself can set in the very sclerosis of the system.

Shirish Chindhade,
Principal,
Manghanmal Udham
College of Commerce,
Pimpri-Pune : 411017.

UNIVERSITY NEWS

A Weekly Chronicle of Higher Education

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AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on higher education. Among the topics prominently represented are educational sociology, educational planning, educational administration, teaching & teachers' training, examinations, economics of education and country studies. Developing fields of adult education, continuing education and distance education, and educational technology are also well stocked.

The library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of higher education. Files of annual reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to the AIU Library'.

The library receives about a 100 periodical titles on higher education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'. Similarly our column 'Education News Index' reports editorials and articles on higher education published in over 20 newspapers that are received in the library from all over the country.

The library is steadily building up a collection of audio and video cassettes on matters educational and maintains a well appointed Audio-Visual Room equipped with a double deck audio cassette recorder, a VCR and a colour TV monitor, and an overhead projector.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees in Indian Universities

SOCIAL SCIENCES

Psychology

1. Bhardwaj, Kalpna. Depression, self image and communication with mother: A study of female adolescents. HP. Dr (Mrs) K A Shirali, Department of Psychology, Himachal Pradesh University, Shimla.

2. Raj Kumari. Fear of success, sex-role attitudes, career salience, traditional-nontraditional career choices and anxiety level of college women. HP. Dr A S Sethi, Department of Psychology, Himachal Pradesh University, Shimla.

3. Rawat, Daisy. Stress coping strategies and psychological well-being: A study of school teachers. HP. Dr Sagar Sharma, Department of Psychology, Himachal Pradesh University, Shimla.

4. Sahoo, Santosh Kumar. Agonistic behaviour of rhesus monkeys, macaca mulatta, and hanuman langurs, presbytis entellus, in Shimla. HP. Dr R S Pirta, Department of Psychology, Himachal Pradesh University, Shimla.

5. Sangeeta. A study of life events, anxiety, anger and depression in patients with chronic intractable pain. HP. Dr Sagar Sharma, Department of Psychology, Himachal Pradesh University, Shimla.

6. Saxena, Subodh Kumar. Organizational role stress and job value amongst the primary health centres medical officers of

Gwalior Division. Jiwaji. Dr N K Gupta, Department of Psychology, Jiwaji University, Gwalior.

Sociology

1. Chourasia, M K. An investigative study on police training programme of non-gazetted officers in Madhya Pradesh. H S Gour. Dr D K Mukharya, Reader, Department of Sociology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

2. Pandey, Raj Mani. A socio-criminological study of slums of Bhopal, 1989-90. H S Gour. Dr D K Mukharya, Reader, Department of Sociology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

3. Raj, Usha. Victims of property offences. H S Gour. Dr H S Mheshwari, Reader, Department of Criminology and Forensic Science, Dr Harisingh Gour Vishwavidyalaya, Sagar.

4. Rathod Bachubhai, A. Yuvanoni navarash pravrutio. Bhavnagar. Dr R N Bhatti, Reader, Department of Sociology, Bhavnagar University, Bhavnagar.

5. Seethakutty, K. Widowhood in Hinduism. Kerala. Dr Mariamma Joseph, Prof, Loyola College of Social Sciences, Sreekariyam, Trivandrum.

6. Sidhu, Jasbir Singh. Caste and patterns of social achievement: A study of social mobility processes among Rai Sikhs and Labanas. Panjab. Dr (Mrs) Raj Mohini Sethi, Department of Sociology, Panjab University, Chandigarh.

7. Vardhan, Ranjay. *Female headed households: A sociological study.* Panjab. Dr K P Singh, Department of Sociology, Panjab University, Chandigarh.

Political Science

1. Ayyakkannu, K. *A comparative study of the separatist parties: DMK in Tamil Nadu, India and PQ in Quebec, Canada.* Annamalai. Dr S Bhaskaran, Prof and Head, Department of Political Science, Annamalai University, Annamalaiagar.

2. Balraj, P. *Leadership in Panchayat Raj Institutions: A study of South Arcot District in Tamil Nadu.* Annamalai.

3. Jacob, P A. *A critical study of the Gandhian movement in Kerala with special reference to Gandhi Peace Foundation.* Annamalai. Dr A Shanmugam, Reader, Department of Political Science, Annamalai University, Annamalaiagar.

4. Krishnamurthy, B. *Political orientation of university teachers in Tamil Nadu: A study in political culture.* Annamalai. Dr A Shanmugam, Reader, Department of Political Science, Annamalai University, Annamalaiagar.

5. Meenakshisundaram, P. *Role of India in the United Nations on the issue of Apartheid in South Africa - 1952-1964.* Annamalai. Dr S Bhaskaran, Prof and Head, Department of Political Science, Annamalai University, Annamalaiagar.

6. Nakkeeran, K S. *Democratic commitment of the legislators: A case study of Tamil Nadu.* Annamalai. Dr S Bhaskaran, Prof and Head, Department of Political Science, Annamalai University, Annamalaiagar.

7. Natarajan, P. *Periyar E V R: A study in personality and leadership.* Annamalai.

8. Rashmi Bala. *Pakistan mein Jantrantik andolon, 1971-1990.* BHU. Dr (Mrs) Manju Kumar, Department of Political Science, Banaras Hindu University, Varanasi.

9. Vivekanandan, V C. *International relations.* Annamalai. Dr S Bhaskaran, Prof and Head, Department of Political Science, Annamalai University, Annamalaiagar.

Economics

1. Bhavsar, Prabhavati. *Bharat mein kendra-rajya viltiya sambandh: M P ke sandarbh mein ek vishesh adhyayan.* Vikram. Dr G C Khimesara, Prof, Department of Economics, Government College, Mandsaur.

2. Gaur, Sunita. *Madhya Pradesh ke adivasi kshetron mein Jananki ke pravrittiyon ka adhyayan.* Vikram. Dr (Mrs) Sharda Shinde, Lecturer, Department of Economics, Govt Girls College, Ujjain.

3. Gogate, Madhav Vasudeo. *A study of urban co-operative banks with reference to Sangli District.* Shivaji. Dr S S Sahastrabudhe, Department of Commerce, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

4. Gupta, Santosh. *Dewas Jile ka andyogik vikas: Vartman sthiti, sambhavnayen evam samasyayan.* Vikram. Dr Ramratan Sharma, Asstt Prof, Department of Economics, Vikram University, Ujjain.

5. Jain, Citrarekha. *Madhya Pradesh mein krishi kshetra ka badalta swarup: Ujjain Jile ke vishesh sandarbh mein, 1981 se 90.* Vikram. Dr (Mrs) Pushpa Soni, Department of Economics, Govt Girls College, Ujjain.

6. Malviya, Pradeep Kumar. *Institutional finance and its impact on agricultural economy: A case study on Mandsaur District of M P.* Vikram. Dr G C Khimesara, Prof, Department of Economics, Govt College, Mandsaur.

7. Pandey, Vinod Kumar. *A study of utilisation of co-operative credit in Varanasi District.* BHU. Dr A R Prasad, Department of

Economics, Banaras Hindu University, Varanasi and Dr G S Singh, Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

8. Patel, Sushma. *Khargoan Jile ke grameen arth vyavastha mein sansthaगत सख के भूमिका: Sehkari सख समितियों के विशेष सन्दर्भ में.* Vikram. Dr (Mrs) Sharda Shinde, Lecturer, Govt Girls College, Ujjain.

9. Purohit, Anuradha. *Dewas Jile ke vastra-udyog mein shram sambandh evam unka utpadan per prabhav.* Vikram. Dr (Mrs) Sudha Mehta, Lecturer, 71 Azad Nagar, Devas Road, Ujjain.

10. Rajoria, Narendra Kumar. *Madhya Pradesh ke nagar sudhar nyason ka vishleshnatmak adhyayan: Ujjain Sambhag ke vishesh sandarbh mein.* Vikram. Dr R C Goyal, Lecturer, Department of Economics, Govt College, Neemuch.

11. Sant Kumar. *A study of Commercial Bank Finance to agriculture in India.* BHU. Prof D K Mishra, Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi and Dr R S Dixit, Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

12. Sharma, Rajender Kumar. *Indore Jile mein sanrachnatmak (Asthanpaniya) suvidhayon ka vikas evam arthik pragati.* Vikram. Dr Ramratan Sharma, Lecturer, Department of Economics, Vikram University, Ujjain.

13. Upadhyay, Basant Kumar. *Ujjain sambhag ke sinchayee pariyojnayan mein kafaryat shramikon ka arthik adhyayan.* Vikram. Dr Ramratan Sharma, Lecturer, Department of Economics, Vikram University, Ujjain.

Law

1. Baldev Singh. *A study of the dynamics of judicial constitutionality control and the dialectics of the Ninth Schedule in the Indian Constitution.* HP. Dr Suresh Kapur, Department of Law, Himachal Pradesh University, Shimla.

2. Chhabra, Sunil. *Constitutional philosophy of legal aid in India: An empirical study of the administration of legal to the weaker sections of the society in the State of Himachal Pradesh.* HP. Dr B R Sharma, Department of Law, Himachal Pradesh University, Shimla.

3. Harnam Singh. *State's power to regulate religious affairs with special reference to Himachal Pradesh.* HP. Dr Narinder Gupta, Department of Law, Himachal Pradesh University, Shimla.

4. Kamal Jeet Singh. *Constitutional philosophy of distributive justice: A socio legal study.* HP. Dr P L Mehta, Department of Law, Himachal Pradesh University, Shimla.

5. Om Prakash. *Tribunalisation of Justice in India: A study of growth and development of service tribunals.* HP. Dr I P Massey, Department of Law, Himachal Pradesh University, Shimla.

6. Sharma, Bhuvnesh. *Critical study of agrarian reforms in India: A study with special referene to Himachal Pradesh.* HP. Dr P L Mehta, Department of Law, Himachal Pradesh University, Shimla.

7. Singh, Reena. *A comparative study of family composition with children of same sex and different sex in Chandigarh: A socio-demographic analysis.* Panjab. Dr K C Kaistha, Department of Sociology, Panjab University, Chandigarh.

8. Vijai Kumar. *Critical analysis of Law of State Succession in respect of matters to the exclusion of treaties.* HP. Dr Amar Singh Sankhyani, Department of Law, Himachal Pradesh University, Shimla.

Education

1. Anitha, K S. *A follow up evaluation of transference of profes-*

sional efficiency of beginning teachers from teacher education centre to school campus. Kerala. Dr K R Sivadasan, Prof, Department of Education, University of Kerala, Thycad, Thiruvananthapuram.

2. Anjilivelil, Mathew M. A study of English language curriculum at the U G level in Madurai Kamaraj University. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

3. Balakrishnaveni. Working women's attitudes towards their role conflict in V O C District. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

4. Chandrasekaran, S. Role of inspecting officials at the primary level in Pasumpon Muthuramalinga Thevar District. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

5. Chhannu Lal. Physical fitness norms for rural and urban high school boys of Varanasi and Mirzapur District. BHU. Prof S S Sharma, Department of Physical Education, Banaras Hindu University, Varanasi.

6. Madhumohan, B S. A comparative study of the effectiveness of self-study approach and teacher centred approach in the learning of Chemistry in standard XI. Kerala. Dr K R Sivadasan, Prof, Department of Education, University of Kerala, Thycad, Thiruvananthapuram.

7. Rajagopal, T. Development of democratic values through value analysis techniques at higher secondary level. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

8. Savadamuthu. A study on teacher and student morale in Dindigul Anna District. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

9. Soundararajan, R K. Developing everyday function based video programmes for science learning. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

10. Sudarkkodi, S. Developing multimedia packages for minimising error in written English. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

11. Thangavel, D. Effectiveness of non-formal education components in the rural development programmes implemented in Pasumpon Muthuramalinga Thevar District. Alagappa. Dr S Mohan, Prof and Head, Department of Education, Alagappa University, Karaikudi.

Commerce

1. Aggarwal, Satya Narayan. Madhya Pradesh mein vanaspati udyog kee uplabdhiyan, samasyayen evam sambhavnayen. H S Gour. Dr L C Choudhari.

2. Aggarwal, Subash Kumar. Madhya Pradesh ke grameen kshetra ke audyogikaran kee pravritti, samasyayen evam sambhavnayen: Damoh Jile ke vishesh sandarbh mein. H S Gour. Dr S B Awasthi, Reader, Department of Sociology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

3. Awasthi, Sanjay Kumar. Madhya Pradesh mein Tendu Patta vyavsaaya: Ek arthik adhyayan. H S Gour. Dr A K Gangale.

4. Dube, Prasann Kumar. Bilaspur Sambhag ke kshetriya adim jati evam anusoochit jati vikas pradhikaran, 1980. H S Gour. Dr B K Jain.

5. Jain, Atul. Madhya Pradesh mein kshetriya grameen bankon kee pragati tatha uplabdhiyan: Damoh-Panna Sagar kshetriya Grameen Bank ke vishesh sandarbh mein. H S Gour. Dr Sanjeev Dubey, Department of Commerce, Govt Girls College,

Sagar.

6. Jain, Kiran. Chhindwara Jile mein krishi adharit udyogon ka vikas: Alochnatmak adhyayan. H S Gour. Dr O P Agrawal.

7. Jain, Sushil Kumar. Madhya Pradesh mein audyogik sehkar samitiyon ka adhyayan. H S Gour. Dr B K Jain.

8. Sharma, Ajay Kumar. Hoshangabad Jile mein Tawa Sinchal Pariyojana ka fasal sanrachana evam krishi utpadakta per prabhav. H S Gour. Dr B K Jain.

9. Soni, Jay Kumar. Sagar Sambhag mein laghu sinchal pariyojanayon ka lagat labh vishleshan. H S Gour. Dr O P Agrawal.

10. Varghese, Rajan. Bank overdue in priority sector lending in Kerala. Kerala.

Home Science

1. Kachroo, Jaishree. Psychological development among adolescence working and non-working mothers. Delhi. Dr J Datta, Department of Home Science, University of Delhi, Delhi.

2. Sharma, Archana. Kishore balak balikayon ke naitik vikas ka tulnatmak adhyayan. H S Gour. Dr P K Rai, Department of Psychology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

HUMANITIES

Philosophy

1. Augustine, K J. The quest for transcendence: A study of some of the recent interpretations of religion. Panjab. Dr V T Sebastian, Department of Philosophy, Panjab University, Chandigarh.

2. Das Purnima. A critical study of Indian aesthetics. BHU. Prof K N Mishra, Department of Philosophy and Religion, Banaras Hindu University, Varanasi.

3. John, Sindhu Grace. Existentialism of Sartre and Camus: A comparative study. Kerala. Dr D Nesy, Lecturer, Department of Philosophy, University of Kerala, Kariavattom.

4. Mehta, Madhu Bala. Rationale of equality and the autonomous individual: A re-examination of John Rawls' philosophy. Panjab. Dr (Miss) Bhuvan Chandel, Department of Philosophy, Panjab University, Chandigarh.

5. Mishra, Ashok Kumar. Jain evam Baudha Acharya ka tulnatmak adhyayan. BHU. Dr M B Mehta, Department of Philosophy and Religion, Banaras Hindu University, Varanasi.

Language & Literature

English

1. Chandran, Mini. Literacy censorship in the twentieth century with special reference to James Joyce's Ulysses, D H Lawrence's Lady Chatterly's Lover, Thomas Mann's The Magic Mountain and Boris Pasternak's Dr Zhivago. Kerala. Dr B Kumari Chandrika, Department of English, All Saints College, Thiruvananthapuram.

2. Dhaliwal, Amrik Singh. Expression strategies: A study of Herald Pinter's select plays. HP. Dr Som P Sharma, Department of English, Himachal Pradesh University, Shimla.

3. Dhillon, Asha. A critical analysis of the theme of isolation of human self and search for identity in the selected plays of Edward Albee. Bundelkhand. Prof Pradip Lahiri, Post Graduate Department of English, Bundelkhand College, Jhansi.

4. Ganguli, Mira. Women imagery in the poetry of William Carlos Williams. HP. Dr A K Biswas, Department of English, Himachal Pradesh University, Shimla.

5. Gujral, Rabinder. A critical evaluation of Bertolt Brecht's

epic theatre. Bundelkhand. Prof Pradip Lahiri, Post Graduate Department of English, Bundelkhand College, Jhansi.

6. Hariharan, B. Robert Krootsch and Rudy Wiebe as concerned voices of the prairie. Kerala. Dr A Jameela Begum, Reader, Institute of English, University of Kerala, Thiruvananthapuram.

7. Madhu Bhushan. Aurobindonian interpretation of Shakespeare's major plays. HP. Dr Som P Sharma, Department of English, Himachal Pradesh University, Shimla.

8. Malathy, A. Image of godmen in post-independence Indian novels: A vision and revision. Kerala. Dr V Radha, Prof, Institute of English, University of Kerala, Thiruvananthapuram.

9. Negi, Mehar Singh. Nature and man in Wordsworth's lyrical ballads: A study in relationship. HP. Dr A K Biswas, Department of English, Directorate of Correspondence Courses, Himachal Pradesh University, Shimla.

10. Paliwal, Madhu. Beckett's 'Waiting for Godot' and the Nature of the Absurd: A study through the intricate pattern of verbal expressiveness. Bundelkhand. Prof Pradip Lahiri, Post Graduate Department of English, Bundelkhand College, Jhansi.

11. Parvathy, R. Nirad C Chaudhuri: The alienated man and artist. Kerala. Dr K Radha, Prof, Institute of English, University of Kerala, Thiruvananthapuram.

12. Sharma, Anita. Winter, old age, and death in the poetry of William Carlos Williams. HP. Dr (Mrs) Mita Biswas, Department of English, Directorate of Correspondence Courses, Himachal Pradesh University, Shimla.

13. Sharma, Neera. Lexico grammar of Indian English with special reference to the usage of Mulakraj Anand, Khuswant Singh and Chaman Nahai. HP. Dr Som P Sharma, Department of English, Himachal Pradesh University, Shimla.

14. Sud, Malini. August Strindberg: Dramatist of the subconscious: A psychological study of his selected plays. Bundelkhand. Prof Pradip Lahiri, Post Graduate Department of English, Bundelkhand College, Jhansi.

15. Suman Kumar. Quest for self in the plays of Eugens O'Neill. HP. Dr V K Khanna, Department of English, Evening College, Himachal Pradesh University, Shimla.

16. Verma, Daya Nand. Social protest in the five novels of Mulk Raj Anand. HP. Dr Anil Wilson, Department of English, Himachal Pradesh University, Shimla.

Sanskrit

1. Athidhi Devi, N K. Malathimadhava: A critical study. Kerala. Dr N Parameswaran Unni, Prof, Department of Sanskrit, University of Kerala, Kariavattom.

2. Pandey, Ramakant. Sanskrit Kaveyeshu Smrititvatam. H S Gour. Dr R B Tripathi, Prof and Head, Department of Sanskrit, Dr Harisingh Gour Vishwavidyalaya, Sagar.

3. Ramchanderrao Dev, Pratibha. Shrimad Bhagvat ke pratik kathayon ka adhyayan. H S Gour. Dr Achutanand Dash.

4. Sharma, Anjna. Bhoj ke kavya shastriya granthon ke paripekshya mein shaili vighyan ke sameeksha. H S Gour. Dr R B Tripathi, Prof and Head, Department of Sanskrit, Dr Harisingh Gour Vishwavidyalaya, Sagar.

5. Shrivastava, Shri. Adhunik Sanskrit katha sahitya ka vikas, 1950 se 1990 tak. H S Gour. Dr Asha Sarvate

6. Shukla, Vijay Kumar. Vyakaram Shastriya drishtya Shri Bhoj-deva vishvash Shringar Prakashya anusheelanam. H S Gour. Dr Achutanand Dash

7. Srivastava, Veena. Bhavbhooti ke roopkon ka bhasha shastriya adhyayan. H S Gour. Dr Achutanand Dash

8. Tamrakar, Sharda. Shridhar Bhaskar Vargekar: Vyaktitva tatha krititva. H S Gour. Dr Asha Sarvate.

Punjabi

1. Darshan Singh. Navtej Singh Dian kahanion vich pragatichetna. Panjab. Dr Surinder Kumar Deveshwar, Department of Punjabi Lexicography, Panjab University, Chandigarh.

2. Jagtar Singh. Punjabi heer-kav da sabhiacharak adhyayan: Panj kissian de vishesh havale nal. Panjab. Dr Nahar Singh, School of Punjabi Studies, Panjab University, Chandigarh.

3. Jasbir Kaur. Punjabi novel vich shreni chetanata: Juswant Singh Kanwal Gurdial Singh te Karamjeet Kussa de vishesh sandarbh vich. Panjab. Dr Ragbir Singh, School of Punjabi Studies, Panjab University, Chandigarh.

4. Megha Singh. Punjabi patrakarita da Punjabi sahit de vikas vich yogdan. Panjab. Dr Ujjagar Singh Sehgal, Reader, Directorate of Correspondence Courses, Panjab University, Chandigarh.

5. Parminder Kaur. Hasham rachit 'Darul Hakikat' dohrian da tulnatmak adhyayan. Panjab. Prof Attar Singh, Sheikh Baba Farid Chair, Panjab University, Chandigarh.

6. Parminderjit Kaur. Dalip Kaur Tiwana ate Ajit Kaur Dian galap rachnavan de istri-patar: Ik tulnatmak adhyayan. Panjab. Prof Ragbir Singh, School of Punjabi Studies, Panjab University, Chandigarh.

7. Sarbjit Kaur. Nanak Singh de novelan da samaj-sapekh adhyayan. Panjab. Dr Nachhattar Singh, Lecturer, School of Punjabi Studies, Panjab University, Chandigarh.

8. Surjit Singh. Inter-faith dialogue in Guru Nanak Bani. Panjab. Prof Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.

Hindi

1. Awasthi, Arati. Premchand ke kathaitar sahitya ka adhyayan. H S Gour. Dr Rajmati Divakar, Lecturer, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

2. Bhatnagar, Sarita. Shri Lal Shukla ke sahitya mein samajik aur rajnaitik chetna. H S Gour. Dr H P Singh, Reader, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

3. Chander Kanta. Samkaleen Hindi kahani ka samj-manavalgyanik vishleshan. Panjab. Dr Yash Gulati, Department of Hindi, Panjab University, Chandigarh.

4. Gauhar, Vimlesh. Prasad aur Nirala ke upanyayon mein varnya vastu ka anusheelan. H S Gour. Dr Gobind Dwivedi, Lecturer, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

5. Jain, Arati. Hindi laghu katha: Swarup aur vikas. H S Gour. Dr Anand Prakash Tripathi, Lecturer, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

6. Jaiswal, Ajay Kumar. Makhanlal Chaturvedi aur Balkrishnan Sharma 'Naveen' ke Hindi patrakarita ka tulnatmak anusheelan. H S Gour. Dr L N Dube, Prof, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

7. Maurya, Kalpana. Vishnu Prabhakar ke natya sahitya ka anusheelan. H S Gour. Dr Anand Prakash Tripathi, Lecturer, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

8. Onkar Singh. Ganga Ram ke kavya mein saundarya chetna. Panjab. Dr R D Singhal, Department of Hindi, Panjab University, Chandigarh.

9. Pandey, Leelawati. Motiram ke saundarya chetna. Panjab. Dr R D Singhal, Department of Hindi, Panjab University, Chandigarh.

10. Prem Lata. Mukti-Bodh kavya mein janvadi chetna. Pan-

jab. Prof M P Bhardwaj, Department of Hindi, Panjab University, Chandigarh.

11. Purohit, Shriram. *Hindi ke rajnitik natak*. H S Gour. Prof K K Jain, Head, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

12. Shukla, Sushma. *Meera ke kavya mein sangit tatva: Ek adhyayan*. H S Gour. Dr Gobind Dwivedi, Lecturer, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

13. Thakur, Karuna. *Bharat Bharati mein varnit Jeewanadarshon ka anusheelan*. H S Gour. Dr (Mrs) Kamla Gautam.

14. Tiwari, Neerajana. *Pramukh reetikaln kavlyon ke bhakti kavya ka anusheelan*. H S Gour. Dr Gobind Dwivedi, Lecturer, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

15. Verma, Meenakshi. *Samkaleen natakon mein nari swatantraya aur usse upje tanav*. Panjab. Dr V R Mehndiratta, Department of Hindi, Panjab University, Chandigarh.

Kannada

1. Ramaprasad, K. *Remythification in modern Kannada literature*. Bombay. Dr T Vasanthakumar, Department of Kannada,

University of Bombay, Bombay.

2. Uchchilkar, Vani. *A study of the Bovi folklore*. Bombay. Dr T Vasanthakumar, Department of Kannada, University of Bombay, Bombay.

Malayalam

1. Christy, Sonia. *Grammatical terminology in Malayalam*. Kerala. Prof V R Prabodhachandran Nair, Prasadam, Planchery Lane, Vallakedavu P O.

2. Sreekumari, S. *Pattu and Manipravala: A cultural study*. Kerala. Dr B Sudhakaran Pillai, Prof, Department of Malayalam, M G College, Trivandrum.

3. Sreelatha, R. *Nominal composition in Malayalam: A historical study*. Kerala. Prof E V N Namboodiri, Department of Linguistics, University of Kerala, Kariavattom.

Geography

1. Vishwakarma, Rekha. *A geographical study of diet and health in Sagar City*. H S Gour. Dr P D Tiwari, Lecturer, Department of Geography, Dr Harisingh Gour Vishwavidyalaya, Sagar.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Kannappanavar, Basavaraj Ujjappa. *Citation analysis of docotoral dissertations in Library and Information Science accepted by the Universities in Karnataka*. Karnatak. Dr S R Ijari, Reader, Department of Library and Information Science, Karnatak University, Dharwad.

2. Sadasiva Murthy, P. *Library Science education in Karnataka since 1900: A critical study*. Gulbarga. Dr S R Gunjal, Prof and Chairman, Department of Studies and Research in Library and Information Science, Gulbarga University, Gulbarga.

3. Vij, Rajeev. *Information needs, awareness, habits and problems of defence scientists in India: A study*. Panjab.

Psychology

1. Dogra, Rajeev. *A study of depressive disorders in relation to life stress, personality and social support*. HP.

2. Shish Pal. *Inheritability (h²) of Intelligence (g): Inter and intra racial comparisons*. Kurukshetra.

3. Sinha, Surendra Kumar. *A study of ladership behaviour, organisational climate, teacher morale and pupil motivation in Public and Government schools*. Magadh.

4. Sondhi, Neena Ghai. *Analysis of some psycho-social factors among hierarchical level of personnel on a large scale paper industry*. Delhi.

Sociology

1. Ahirwar, Kamal Prasad. *Ekikrit grameen vikas pariyojana ka do gramon ke vyaktiyon ke samajik arthik jeevan per prabhav: Damoh Vikas Khand ke sandarbh mein*. H S Gour. Dr Diwakar Sharma, Department of Sociology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

2. Chattoo, Sangeeta. *A sociological study of certain aspects of disease and death: A case study of Muslims of Kashmir*. Delhi.

3. Jatav, Santosh Kumari. *Swarojgar laghu udyog sansthayon ka samajshastriya vishleshan: Jabalpur Nagar ke swarojgar laghu udyog, mahila karmiyan ke vishesh sandarbh mein*. Durgawati. Dr P B Sengupta, Department of Sociology, Rani Durgawati Vishwavidyalaya, Jabalpur.

4. Kannan, R. *Traditional techniques of conflict resolution in Rural India with special reference to Vellalore Nadu Melur Taluk, Tamil Nadu in Gandhian perspective*. Madurai.

5. Mainali, Girish Chandra. *Social structure and alienation : B H E L. Kumaun*. Dr S S Chauhan.

6. Sharma, Madhavi Lata. *Nagariya parivesh mein Dr Rammanohar Lohia ke samajik vicharon ka tathyatmak mulyankan*. H S Gour. Dr Shrinath Sharma, Department of Sociology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

7. Tewari, Prema. *Tharu Janjati per vikas karya kramon ke prabhav ke samajshastriya adhyayan*. Kumaun. Dr G K Agrawal.

Social Anthropology

1. Bandyopadhyaya, Suemita. *Material working status and health of mother and child*. Calcutta.

2. Vishwanadha Reddy, K. *Idiga of Chittoor District: A study in change and continuity*. Karnatak. Dr K G Gurmurthy, Prof and Chairman, Department of Anthropology, Karnatak University, Dharwad.

Social Work

1. Krishnan Nair, Thankappanpillai. *Community care for the elderly: A study of family and community based services for the elderly in Madras*. Andhra

Political Science

1. Chhabra, Kiran Balz. *Indore Samibhag ke swatantrayottar rajniti: Ek vivechan, 1947-1980*. Devi Ahilya. Dr B R Sath, 67/4, Hardiya Compound, Sanyogita Ganj, Indore.

2. Chiemela, Nwaorgu Omenihu. *Politics of Nigeria: A study of its leadership pattern, 1960-83*. Panjab.

3. Gurumurthy Reddy, Maddi. *Higher education in Andhra Pradesh during Telugu Desam Government, 1983-89: A study*. Andhra.

4. Md Yasin. *Administrative reforms for rural development: A study of two Districts of North Bengal*. North Bengal.

5. Mukhopadhyay, Ashim. *Poverty in Rural Bangladesh: A study of the factors regarding the growth of rural economy of the country with emphasis on the analysis of the biases hampering agricultural production*. Rabindra Bharati.

6. Pandey, Somnath. *Nagarpalika prashasan evam rajniti: Haldwani evam Kathgodam Nagarpalika ka valyaktik adhyayan*. Kumaun. Dr D C Pande.

7. Suna, Dingar. *American policy towards the Non-Aligned Black Africa: A case study of Ghana*. Sambalpur. Dr L N Mishra, Reader, Department of Political Science, Sambalpur University, Jyoti Vihar, Burla.

8. Tripathi, Subhra. *Women and a new social order: The impact of IRDP in a tribal District of Orissa*. Berhampur. Dr B B Jena, Prof, Department of Political Science, Berhampur University, Berhampur.

Economics

1. Agrawal, Uma Rani. *Uttar Pradesh mein maltha udyog tatha uska vikas*. Kumaun. Dr R S Sharma.

2. Arumukham, P. *Tamil Nadu Khadi and Village Industries Board: A study of financial management*. Gandhigram. Dr S Sivasubramanian, Prof (Retd), Department of Political Science, Gandhigram Rural Institute, Gandhigram.

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